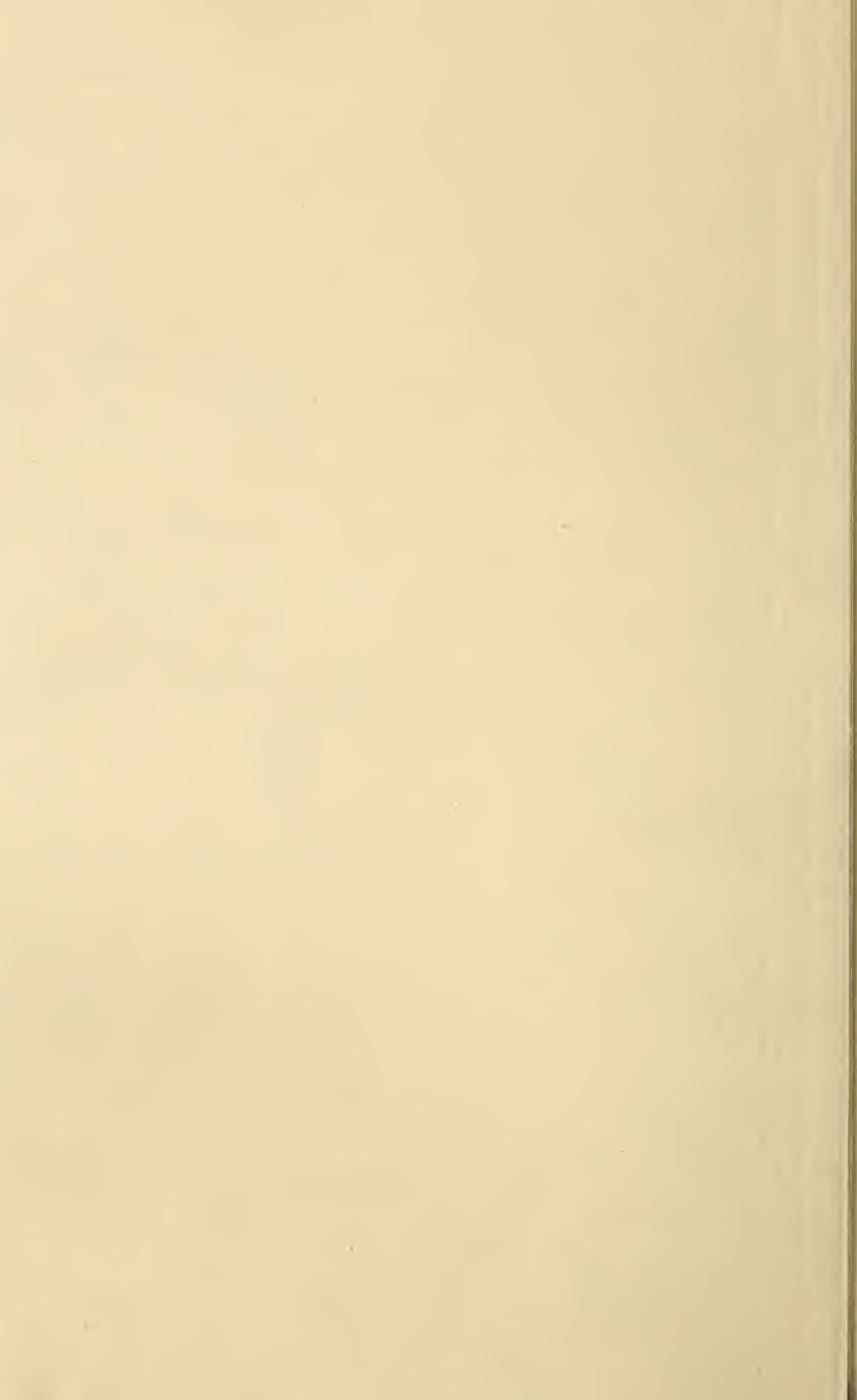


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THE GLEANINGS OF A JOURNAL DEVOTED TO BEES, AND HONEY, AND HOME INTERESTS. ILLUSTRATED SEMI-MONTHLY Published by THE A. F. ROOY CO. \$1.00 PER YEAR MEDINA, OHIO.

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No. 21.



MOTH-BALLS or naphthaline is reported in *L'Apiculteur* as successful in driving ants out of hives.

ON PAGE 781 is an item stirring one all up to expect low prices on basswoods, only to find no prices at all given.

TOMATO-PLANTS laid in hives will drive ants away, according to a writer in *Leiziger Bztg.* [I don't believe it.—ED.]

PROPOLIS differs in different places as to color, stickiness, etc.; and doesn't it differ in color, etc., at different times in the same place?

IF WEAK COLONIES are to be united, be sure to unqueen the ones to be moved, a day or so before uniting, then they'll stay much better where put.

PURE PEPPERMINT honey is very clear, having at first a somewhat sourish taste upon the tongue, and is fine to mix with clover or linden honey, to which it lends its peculiar flavor.—*Lpzg. Bztg.*

SOLID SECTIONS of honey may sometimes be profitably used to feed by putting them under the bottom-bars where there is a two-inch space. Looks a little extravagant, but it's better than starvation.

BLACK BEES, E. W. Brown says in *A. B. J.*, were the only ones that worked for him on linden, his Italians continuing on white clover. That's hardly the general rule, is it? [I don't know.—ED.]

FOR CRACKED HOOFs of horses, melt honey and wax over a slow fire; cleanse thoroughly the hoof; apply the mixture along the cracks and in the surrounding hair. Repeat a few times, and hoof will be sound.—*De Bie.*

DON'T LET any one bamboozle you into the idea that you can handle bees as well with gloves. [Tut, tut, doctor. If you do not look out, R. L. Taylor will "bamboozle" you for using slang.—After I had written that much I took a look at the dictionary, and, sure enough, it is an authorized English word, meaning "to deceive."—ED.]

THE QUESTION still haunts me: "When the queen does wrong by laying out of the center of the cluster, although doing as nearly right as circumstances will allow, and thus departs from Nature's plan, whose plan is she following?" [I don't know.—ED.]

DELIGHTFULLY INGENUOUS is that strainer (isn't it a skimmer rather than a strainer?) of F. E. Brown, page 763, middle of second column. Better turn back and study it up if you didn't notice it. [I am glad you called attention to it, doctor. Perhaps I had better have a picture of it.—ED.]

ENDS OF SLEEVES attached to gloves are fastened to the shoulders, say you, Mr. Editor, p. 769. If you had been a woman you would have noticed that a strap fastened the sleeves together at the back, and another strap buttoned in front. [If Mrs. R. had been describing the method of fastening the sleeves, quite likely she would have been more exact.—ED.]

SWARMING was thus prevented by a correspondent of *Revue Internationale*: He closed for 18 days the regular entrance, making an entrance to the super. The six colonies thus treated didn't swarm, but filled their supers, while the rest of the apiary swarmed. [I can not see *why* this change of entrance would stop swarming; and is it not possible that the honey in the supers would ripen more slowly because of the proximity of the opening?—ED.]

WHITEWASH for hives is strongly recommended in *Revue Eclectique*. Nothing has been said about it for some time in this country. Is it still used, and is it liked? [Years ago we used whitewash for hives; and while they looked nice the covering did not add to the durability of the wood. Durability is of prime importance, and looks, secondary. But whitewash would be almost as good as some of the cheap liquid paints that are now on the market.—ED.]

SOME 700 PERSONS were present at the late convention of German bee-keepers at Salzburg. Did I hear some one say something about the Germans being a slow people? I read once of a bee convention which 500 were going to attend in this country, but I never heard of one that so many *had* attended. [If you will

cut down our geographical distances, doctor, or, better still, give us railroad mileage of half a cent per mile, I will guarantee that we can have a convention of at least 500 beekeepers.—ED.]

HONIGKUCHEN. Bring 1 lb. extracted honey and $\frac{1}{4}$ lb. butter to a boil. Let cool for 10 minutes. Add 1 lb. flour, $\frac{1}{4}$ lb. ground almonds, $\frac{1}{2}$ teaspoonful of cloves, the grated peel of a lemon, and a scant teaspoonful of soda dissolved in a little hot water. Mix, and set aside over night. Next morning, roll out $\frac{1}{2}$ inch thick, cut in small squares, press an almond in each corner and in the center, and bake in a moderate oven.—*Chicago Record.*

"EVER SINCE we have begun using loose bottom-boards, and raising the hives in front in hot weather, we have avoided the breaking-down of combs by heat."—C. P. Dadant in *American Bee Journal*. Is there no mistake about this? Somewhere I think I have seen it stated that on a hot day it is cooler in the hive than out, and that raising the hive only makes it warmer. [Why should there be any mistake about Dadant's statement? It appears to me to be entirely within the limits of the experience of some others.—ED.]

WHOO! WHOO! hurrah! lots of us outsiders are glad a quietus has been given to Medina saloons. [While we rejoice over our victory we realize that it would be folly to rest on our laurels. In any temperance fight, it is necessary to keep continually on the alert, else the Devil would be sure to take advantage of us. He is never asleep, you know. If more of the churches would send their preachers and their best laymen to the polls to work for the cause of righteousness, there would be less of wickedness in high places.—ED.]

"SHOULD THE QUEEN be clipped? A beekeeper inquiring on this subject, Mr. E. Root, the editor of the *American Journal*, GLEANINGS, replies that he has clipped queens for more than 50 years, and finds it to his advantage."—*L'Apiculteur*. I didn't suppose Ernest had begun clipping so long ago. [I can not imagine where *L'Apiculteur* got its information. I first saw daylight something over 36 years ago; but it was not till I was about 15 years old that I had much if any thing to do with bees, so that my apicultural experience all told comes inside of about 20 years. Later, it is true, we have practiced clipping, but for only about two years—quite a difference between that and fifty.—ED.]

DISPUTE about feeding, p. 766, between Messrs. Doolittle and Root. Both right. The man who has bees to feed late should take no chances feeding half-and-half sugar and water. But if he's wise he'll not wait so late that he'll have any need of cookery. I fed 600 lbs. of sugar this year, with no cooking and no stirring. I just dumped sugar into the feeder, then poured water on it. [We have made syrup cold by mixing sugar in the proportion of one-third water to two-thirds sugar, but it took a little more stirring; but I suspect that, after all, when it is necessary to feed late, Doolittle's method of mixing syrup

will be better; but I never could see that syrup granulating in combs back to sugar made any trouble so far as wintering is concerned.—ED.]

THAT LOSS OF STING does not necessarily mean loss of life, M. Vesigne (*Revue Internationale*) satisfied himself after this fashion: He put a live mouse into an observatory hive, and stirred up the bees, at the beginning of winter. The mouse was hidden by bees, which left their stings by hundreds. Number of dead bees next day—seven! [Look here, doctor; you did not finish your story. We are all at sea as to whether that mouse lived or died. You will remember how, some years ago, we caged several bees that had lost their stings, along with other bees that had their stings, and that one lot lived as long as the other. I know it is generally thought that bees die immediately after losing their stings; but it is high time the myth were exploded.—ED.]

M. GENONCEAUX, director apicultural station at Huy, says, in Sept. *Rucher Belge*, that foul-broody honey should be boiled $2\frac{1}{2}$ hours, or kept at 195° for four hours. Critic Taylor called me down for saying boil $2\frac{1}{2}$ hours, saying he thought 15 minutes enough. Possibly Bro. Taylor is giving dangerous advice. [It would be interesting to know whether Mr. Genonceaux found that some of the germ life, or spores, after two hours and a quarter of boiling, say, were still alive. Personally I should be inclined to believe that Taylor's statement was correct. We have fed foul-broody honey brought to a temperature of about 180, or about as hot as it could be made with a steam-pipe, and kept it there for ten or fifteen minutes. No foul brood resulted from this honey. Now, perhaps this honey was not infected, so it would be interesting to know further in regard to Mr. Genonceaux' experiment.—ED.]

I DON'T KNOW for certain, but I imagine there's some imagination in the talk about the tenderness and fine edible qualities of comb in sections, its being friable, etc. I doubt whether the flavor of the wax is ever noticed by one eating biscuit and honey. At any rate, I always prefer the honey that has run out on the bottom of the plate. One thing I know for sure: Comb ten years old, that has been out of the hive in a dry place for five years empty, is more friable than comb made two months ago. [Extracted honey very often comes from old combs, and if it be in that comb six weeks before it is thrown out it would acquire no added quality in the way of flavor. The honey that is stored in sections is stored in *new* comb, and may remain in that comb anywhere from two weeks to two years before it is eaten. Suppose it is consumed, as it would be in the majority of cases, within six months from the time of coming off the hive. Now, *suppose* again that there is a peculiar flavor to wax, would not more of that flavor be imparted to the honey stored in sections than that stored in extracting-combs? Understand I do not claim that wax has a flavor of its own.—ED.]



LARGE HIVES.

Swarming with Large Hives; How a Queen Lays Her Eggs; Importance of Plenty of Room.

BY C. P. DADANT.

In considering this question of the adoption of large hives, one of the principal things we have had in view was the prevention of swarming. With some apiarists this is a matter of small importance. Either they wish to increase their colonies in numbers, or they have sale for the swarms, as used to be the case some twenty-five years ago; or perhaps they expect to make up for winter losses with the natural swarms harvested.

With us the case was different. We have had 's many hives of bees as we cared to manage, for twenty years or more; and even from the beginning we foresaw that swarming would always be an annoyance to us that would not be compensated by whatever advantages there are in natural swarming. In the first place we have a number of out-apiaries, and the farmers are not always on hand when the bees swarm, so that the bees are not as well taken care of as we might wish at swarming-time. In addition, when the average amount of natural swarming is expected, one has to keep on hand quite a stack of empty hives, ready to receive the bees. Then it very often happens that, when the bees get the swarming-fever, they swarm themselves to death, and cast off, at the last, such puny swarms that they must either be returned, or fed for winter. With large hives there is less swarming, as the queen more readily finds cells in which to lay the eggs that are produced so rapidly that she must lay them in cells or drop them on the floor of the hive. And while I am on this subject, let me suggest that it is at least a mistake to figure up a certain number of cells for the use of a prolific queen, and to expect that *she will fill all these* if she is sufficiently prolific. The queen works in the dark, as do all the bees; and, although she can probably see in the dark, she surely does not know where all the empty cells are located. It is certain that she lays as the bees work, with a great deal of method; but for all that, if she has been allowed just the space that she can fill, and no more, do not my readers think that she will lose a great deal of time in hunting for empty cells? We all know in what manner a queen lays. She starts in the middle of the cluster, in the warmest portion of the hive, puts her head into a cell to make sure that it is empty and clean, then inserts her abdomen into this same cell, remains a few seconds motionless, then withdraws and goes to the next. She keeps on circling around this center till she comes to the edge of the comb or to the edge of the cluster, if the weather is cool. In warm weather she is not disturbed in her circle till

she gets to the edge of the comb, when she quite often loses considerable time in regaining the thread of her work. Any one who has opened hives often has seen how regular the patch of brood is as long as it is round. But they have also noticed how irregular the laying often is at the ends of the comb. Shallow hives have a decided disadvantage in this respect, as in several others, and that is one reason why we preferred the deeper frame, Quinby style.

But when the combs have been more or less filled with brood, it is then that the queen is apt to lose considerable time in hunting for more cells, and thus wastes valuable eggs, which, as our old authors used to say, "drop like ripe fruit when they are mature." Yet are we not all agreed that we need those eggs in the early part of the season? We can not too often repeat with Hutchinson, "We need to raise all the bees possible before the opening of the main harvest. We must have the workers, or the harvest will be in vain." Thus we came to the conclusion that we must have plenty of empty cells, enough so our queens would not get overcrowded, at least until the bees begin to bring in the honey. When a queen has plenty of room, one of the biggest incentives to the prevention of swarming is removed.

Don't understand me to say that, with large hives, you will have no swarms, for this is incorrect; but if you want to prevent swarming, to the greatest possible extent, you must, first of all, have large hives. Other things are required, such as the removal of the excess of drone combs, plentiful ventilation, a supply of surplus combs, etc.; but the *sine qua non*, in our eyes, is large hives.

With a little care it is not difficult to keep swarming down to such a point that the natural swarms will barely make up for winter losses. In our case we find it insufficient, and we resort to artificial swarms or divisions, which we find much more satisfactory, for we can breed from the queens that we prefer, and, at the same time, keep our best colonies for producing honey. Every practical bee-man will agree that it is the large colonies that give the large crops, whatever may be his opinion as to the size of hive needed.

But if we *must* have swarms, with large hives they will be large, take my word for it. They will be none of Colin's six-pounders. Dare I say that they will even be larger than those harvested by our supporters of the eight-frame Langstroth hive? If they are not large, the queens are to blame. Allow me to remark that the bee-keeper with a large brood-chamber has a much better chance to judge and compare the prolificness of his queens than has the apiarist or even the scientific man who makes his hives just large enough for the average queens, or, rather, what he *thinks* to be average queens. The very best queen in the country may be kept in a one-frame observing-hive, and yet may not fill it full of eggs. Will that condemn her? Put this same queen on ten or twelve frames, with a good retinue, and see what she will do. It is only by giving her a chance to expand her

faculties that you will be able to pass judgment upon her. The very best tendencies become abortive in unfavorable circumstances. Edison could not have invented what he did had he been raised among the Hottentots. This comparison may be a little far-fetched, but it expresses my thoughts in a plain and forcible way.

I have no doubt that some others, in the same circumstances, and with the same experience that we have had, might have come to different conclusions; but no one should condemn a system which is plausible, and based on the experience of many years, without first giving it a trial.

In another article I will make a comparison of large and small hives for wintering, with our experience in the matter.

Hamilton, Ill.

[I presume it is almost unnecessary for me to state that the foregoing, so far as it relates to swarming, is quite in line with my own experience.]

Mr. Hutchinson, referring to these Dadant articles, suggests that we should not lose sight of the fact that Mr. Dadant runs his bees for *extracted* honey, and that, therefore, swarming is more easily controlled. I would ask Mr. Dadant whether, if he were to produce comb honey exclusively, he would make his brood-chamber smaller; if not, would he, in his opinion, be able to control swarming to the extent that he now does? For my own part, I do not see why these big colonies would not produce comb honey about as well as extracted—perhaps not so large an amount. But, as I stated to Mr. Doolittle elsewhere in this issue, we should not lose sight of the one element of locality. I am ready to concede that, in some places, yes, perhaps in many, the smaller hives might give a better result in comb honey.—Ed.]

HOW TO REQUEEN CHEAPLY.

The Best Method for the Bee-keeper who Runs a Large Number of Colonies.

BY DELOS WOOD.

It seems strange to me that so many beekeepers spend so much of their own labor in trying to save work for their bees. This may do for those who keep a few bees "for fun," but with me it is a matter of bread and honey, or, in other words, I keep bees for profit, and I want them to save work for *me*. Farmers do not spade up their ground to save work for their horses. They make the team plow the ground to save work for themselves. I had thought to throw out a few hints on this subject in regard to queen-rearing, but supposed it too late in the season; but your note on Dr. Miller's last Straw, Sept. 15th, has caused me to write this article.

Perhaps a professional queen-breeder like Mr. Doolittle can afford the time to make artificial cell-cups and grafted larvæ; but I am sure the honey-producer can not. Neither can he afford to hunt up queens day after day,

to keep those first hatching from destroying the others. I believe that the man who produces tons of honey each year can also produce as fine queens as any one who does nothing but rear queens. One colony will produce hundreds of the best queens during one season, and store a fair amount of honey, and, I think, with less labor than by the Doolittle plan.

I would set apart my two best colonies of Italians, one for rearing drones and the other for queen-cells. To the one for drones I would give a large amount of drone comb. The other I would stimulate by feeding, to induce the swarming-fever, giving plenty of worker comb in two story hives, so as to get as large a swarm as possible. This swarm with the old queen I would put into an empty single-story hive, and let them build comb in as many frames as possible. After the queen has begun to lay a small circle of brood in several combs I would take her from the hive and give her a new colony. I would then take each of these new combs of brood and cut around through the circle of cells, just in the same ring that the queen lays, leaving the larvæ (just hatched) at the bottom of the piece of comb left in the frames, taking off the lower part of combs containing only eggs. These larvæ are hatched, usually, the third day from the time the eggs were laid. The bees are now in their best condition for all kinds of work, and will build queen-cells by wholesale, and of the best quality, and will put them on the bottom of this cut comb, which, being cut in the shape of the edge of a saucer, will cause the ends of the cells to spread out from each other as you can spread your fingers apart. This gives room to cut out each cell without injury to any other.

These eggs were laid within a few hours of each other, and will all hatch at the same time, and may all be removed to the nuclei at one time, and the young queens will all, or nearly all, begin to lay at the same time. These queens will be raised in a full colony, under the natural-swarming impulse, and will be "the best queens in the world." If one chooses to watch the old colony awhile, many good queens may be obtained from that. Queens raised in this new comb are, I think, apt to be brighter than those reared in dark combs. Advocates of leather-colored queens should hive the swarm on old combs.

Your engraving on p. 635 shows the comb cut with the circle the wrong way; and if you had not used the cell-cups, and placed them widely apart, the points of the cells built from larvæ in the comb would have been likely to touch each other. The colony used as I have said will build several lots of cells before becoming discouraged; and by giving an occasional comb of hatching brood it may be kept building cells almost indefinitely. Perhaps one trying to supersede a queen might keep it up longer, but I do not think they would build so many cells at one time as they might do under the Doolittle plan.

I have never been successful in getting good queens started from the egg. My bees, when given eggs only, will wait for them to hatch before starting cells, and by that time they

seem to lose their vim, and start fewer cells, and build them smaller.

By remembering that the egg usually hatches the third day, the larva is sealed the sixth day, or nine days from the laying of the egg, and that it is sealed over seven days, and that the queen is hatching in sixteen days from the egg, there is no watching to do. Queens may be pulled on the fifteenth day, and let run in at the entrance, but I prefer to cut the cells on that day and insert them between the top-bars of the frames, without marring the combs, and let them hatch in the hive.

Please do not think I am trying to offer advice to the professional queen-breeder. I have no such aspiration. I have written this chapter from my own experience, for the benefit of my busy brother bee-keepers who wish to requicken their apiaries with as little outlay of labor and time as possible.

Santa Barbara, Cal.

[I believe Mr. Wood can produce queens as he says. But one great advantage of the Doolittle cells is, they are stronger, will stand rougher manipulation, and can be spaced off on a stick just the distance most convenient for handling; and, after all, the making of the cell-cups and the subsequent fastening and grafting is not so fussy as one might suppose. When we first began working on the Doolittle plan it seemed to me it was utterly intolerable, especially as I thought we could get the bees to do for us that which we might attempt to do at a greater expense; but I must confess that the actual working-out of the plan is simpler and more expeditious than it actually reads on paper. But I do most heartily indorse the idea at the opening of Mr. Wood's article, of making the bees save their own work as far as possible. The first time I ever attempted to handle a two-horse plow I thought it was necessary to drag the great big tool around each end of the furrow. My Canuck brother-in-law, John, let me proceed in this way for a few furrows, and then showed me how much easier it was for me to let the horses do the dragging—that is, deposit the plow at just about the point I desired to begin the new furrow.—ED.]

FROM THE EGG TO THE BEE.

Observatory-hive Work.

BY FR. GREINER.

In regard to the question, "How much time is required to bring a bee from the egg to maturity?" bee-keepers have not all been of one mind, so it seems, although our bee-books say 21 days, or perhaps 20 to 21 days. I have seen it stated by some one recently, that 19 days is the allotted time; but, generally speaking, 21 days is commonly considered the usual time. Our friend Doolittle speaks of the matter in the Sept. 15th issue; and when *he* makes a statement of that kind, there is no room for doubt. I made some observations along the same line last summer, and I might add some

minor points to what he says, that may be of interest, so I will tell you about it.

To begin with, the hive I used to make my experiments with is of a peculiar construction, the ends being composed of sections clamped together with Van Deusen hive-clamps in such a manner that, by removing or adding such sections, the hive may be contracted or expanded so as to accommodate any number of brood-frames from one to ten or more. The sides of the hive are glass. A large pane on each side shows the whole side of a comb next to it. When a number of combs are used, the hive may be pulled apart anywhere without giving the bees a moment's warning, thus quickly gaining access to the center or any part of the hive at any time, perhaps surprising them.

Not wishing to experiment with a one-comb colony for various reasons, I established, Aug. 1st, a four-comb one in this hive by simply taking from a very populous colony four brood-combs with bees adhering, adding some more bees by shaking from two other combs all the bees that would naturally be on them. Our thus newly formed colony was carried to a new location, giving the bees a place by the window in my reading-room, facing southeast, and allowing them to fly through a hole cut through a two-inch piece of pine inserted under the slightly raised sash. The bees were the genuine black, or native, and I gave them a very light-colored Italian queen caged in a common wire-cloth cage that I placed in one of the lower corners of an outside frame from which I had previously removed a piece of drone comb. The queen was liberated by the bees the first day after forming the colony; and when, a few days afterward, I pulled the hive apart so as to remove the queen-cage, I saw her walking quietly among the bees on one of the central combs. After the removal of the cage the bees filled out the space again, with drone comb, as I had expected and hoped.

About this time we were having the very warmest kind of weather. Buckwheat was yielding some honey, and I kept feeding moderately besides. Aug. 13th I caught my queen in the act of laying eggs in worker-cells as well as in the recently constructed drone-cells, right in the outside comb next to the glass, and every such cell was immediately marked with colored ink on the pane of glass. I then kept close watch of those cells. It bothered me, many times, to see and distinguish things, but I received great benefit from a strong lamp with reflector, and by using a mirror with which I could throw the sunlight directly on the comb. In due time I saw the little larvæ, and noticed from day to day the increase in their size. At no time did I see a larva stretched out, or, in other words, occupying a cell lengthwise. They always lay curled up in their respective cells. A part of the worker larvæ were capped over in 8 days and 14 hours; all of them within 9 days. No changes could be observed on the now capped cells for eleven days. Sept. 2, at 9 A.M., I discovered some bees emerging from those cells in which I saw the queen lay eggs Aug. 13th at 7 A.M., making the time of growth

and development 20 days and 2 hours as the shortest time. All bees emerged from the marked cells in less than 21 days except one, and this I lost track of. On the 21st and 22d of August I again found the queen depositing eggs in the outside comb next to the glass. Timing her I found she would lay at the rate of one egg in 2 to 2½ minutes counting all the time she was running around pellmell, examining and finding such cells as suited her, but not the time occupied when attendants were feeding her, which happened frequently. At a previous time when I watched her depositing eggs she was carrying on that business at about the same rate, or perhaps 600 eggs per day. In a full colony, and earlier in the season, she might work faster, but I do not know.

The development of the larvæ from the eggs laid Aug. 21st and 22d proceeded about as before, except that the whole time, from the beginning to the full development, was a little more than in the first case. The first bee emerged in 20 days and 4½ hours; the last one, just before, the twenty-one days were up.

I watched the growth and development of the drones just as carefully. The eggs were laid Aug. 13th, as I stated before. Just when the grub broke the shell I am unable to say. I suppose it was at the end of the third day. Aug. 22d, at 10 P. M., the bees had begun capping the cells, and on the following morning at 7 o'clock they were all capped, making just ten days from the laying of the egg. A slight change was noticed going on with the cappings of the drone-cells during the following 14 or 15 days, similar to that observed in queen-cells after they have been capped a little while. The more waxy outside covering was apparently removed by the workers, probably to allow a change of air. The first drone was seen to emerge Sept. 6th, at 11 P. M., making 24 days and 16 hours. The last drone emerged from the cell in just twenty-five days.

It will be seen that the time required to bring a drone from the egg to maturity was a little more than is generally conceded by other writers, while in the case of the workers it was rather less, or at least not more (except in the case of the nineteen-day man). It might be argued that my experiments have but little value because not made on a full-sized colony, which, of course, is true. They were made on a half-sized hive, for my four frames exactly equal five Langstroth frames. The little hive was full of bees to such an extent that they were often seen lying out in a big wad, especially during warm nights and during afternoons, when buckwheat seldom offers inducements. They were strong enough to work in a super, completing at least 12 one-pound sections, and starting in six more. It was also very warm during the whole time the observations were made. In fact, that period was the hottest of the season, and so it can hardly be said that the brood suffered on account of lack of warmth, or that any irregularity could have taken place.

Other very interesting observations were made during the season as to pollen gathering and storing, manipulating the bee-glue pellets, the gradual change from the black to the Ital-

ian stock, and as to whether the young bees build the comb; the length of the life of a worker, etc.

Naples, N. Y.

RAMBLE 154.

More about Mr. Richardson, the Bee-keeper who Produced Last Year 65 Tons from 1000 Colonies.

BY RAMBLER.

There has been much discussion between California bee-keepers in relation to the respective merits of the white, black, or the purple sage. From my own observation there is but little if any difference in quality or characteristics. The honey from all of these sages is classed as "water white," and the flavor, and the proneness to remain liquid a long time, is the same. If an apiary is located where there are many acres of any of these varieties, the hives will rapidly fill when the bloom is on. Mr. Richardson's apiaries, surrounded as they are by acres upon acres of purple sage, during a good year turn out honey in great abundance. One of his apiaries, so situated and stocked with 400 colonies, in 1897 made their owner happy by turning into his tanks over thirty tons of honey; and his entire output from about 1000 colonies was 65 tons. At twelve tons to the car this would require five box cars well loaded. The artist has kindly consented to show up the magnitude of this product in the accompanying illustration.

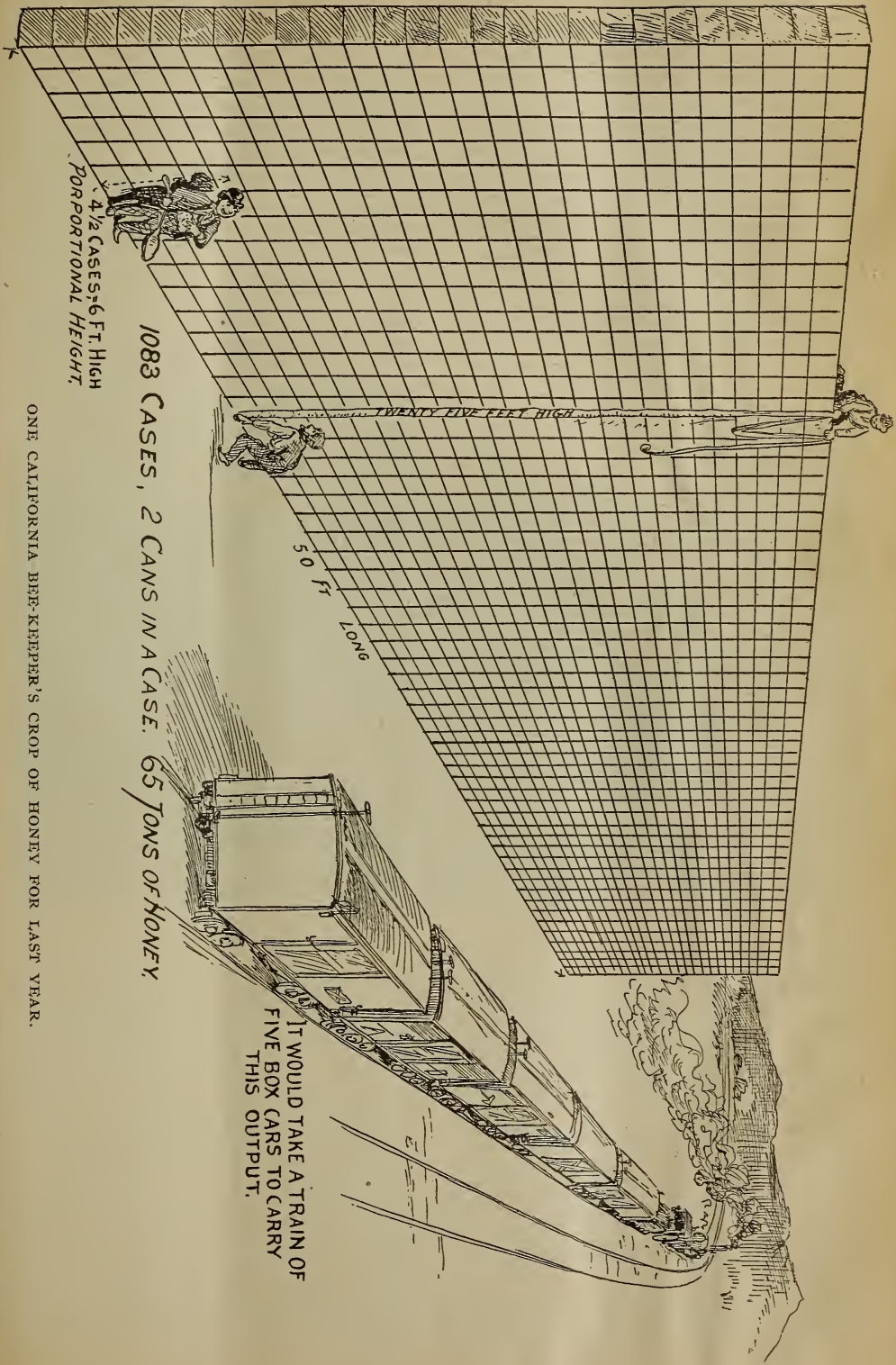
Mr. Mendleson, just over the mountains in Ventura Co., is coming well up to Mr. R. in the number of colonies and in the amount produced. If the past season had been favorable it would have been nipped and tucked with them as to the total output. But, alas! the dry season may throw one or the other out of balance, and it may take a series of years for them to approach so near to the same conditions.

The bee-keepers of Ventura Co. can be justly proud of their large output of honey and of its quality. Honey from this locality always commands the highest market price. Now some might construe this as an argument that the sages of Ventura Co. produce a better honey than the sages in other portions of the State, or that it was in the species of sage; but we find that in many localities in these valleys the crop is exclusively from sage, while in other portions the sage is mixed more or less with honey from other honey-producing flowers.

Wilkin, Cory, McIntyre, Touchton, and several others are veterans in the business in this county, and all help to roll up the output to several train-loads.

The hives in Mr. Richardson's apiaries are worked, as far as possible, with two extracting-supers; and sometimes, if hives are filling up rapidly, another super is added as a check to swarming. When the men are at work in the apiary, two are in charge of the uncapping and extracting, while two remove the combs from the hives to the house.

In the accompanying half-tone two little sliding doors are seen at the lower portion of



4 1/2 CASES, 6 FT. HIGH
PROPORTIONAL HEIGHT.

1083 CASES, 2 CANS IN A CASE. 65 TONS OF HONEY.

TWENTY FIVE FEET HIGH

50 FT

IT WOULD TAKE A TRAIN OF
FIVE BOX CARS TO CARRY
THIS OUTPUT.

ONE CALIFORNIA BEE-KEEPER'S CROP OF HONEY FOR LAST YEAR.

the house. The wheelbarrow, with its load of combs filled with honey, is driven opposite one of the doors, and the boxes are quickly shoved in and the door closed. The wheelbarrow is then moved along and the other door is opened, and the boxes with empty combs are as quickly removed to the wheelbarrow, and the robbers have no chance to get into the house or into the honey. Mr. Richardson takes the utmost care to have his honey of the finest quality, and dealers never make complaint in that respect.

There is one little point in Mr. Richardson's management wherein I think he is away behind the times. Instead of using an up-to-date Cornell or Bingham smoker he uses an old stew-pan. The pan holds about two quarts, has a strong handle of moderate length, and, when the pan is filled with rotten wood, or

creased by purchase he found about forty colonies infected. To make a sure thing of the cure he adopted the heroic method, and committed the whole of them to the flames.

Mr. Richardson practices migratory bee-keeping to a certain extent, and moves a portion of his bees to the bean-fields. This movement is made in order to help the bees to a living through a dry season; but the honey sometimes fails to secrete, even in the bean-fields, as I understand it has this year.

About two years ago Mr. Richardson, in stepping from a moving train in the evening, was thrown violently to the ground, and for several days he lay in an unconscious condition. Mr. Touchton, a brother bee-keeper and friend, lived near the scene of the accident, and Mr. R. was taken to his residence, where Mrs. Richardson and Mr. and Mrs.



ONE OF W. T. RICHARDSON'S APIARIES, SIMI, CALIFORNIA

even sound wood, it is a regular furnace, and sends forth a rousing smoke; but dependence must be placed largely upon the wind for directing the smoke where needed. Mr. Richardson contends that the bellows smoker is not to be depended upon at all times, needs filling often, and is expensive, while a stew-pan is cheap, and always going. He had various other grudges against the modern smoker, and I came to the conclusion that it makes little difference what kind of tool we use if we only become expert in its use and have a measure of success with it. If a person persists in ignoring an improvement, and bids us get away with our new-fangled machine, he will probably stick to his stew-pan in spite of us.

As Mr. R. controls the entire field of forage he is very careful to keep foul brood at a distance. In one of his apiaries which he in-

Touchton tenderly nursed him back to life. Since the accident Mr. R. has not enjoyed his former excellent health; and during the past summer he and his wife have been east in hopes that a few months from business would have a beneficial effect. Upon his return he will devote his entire attention to his ranch and his bees. He claims that many times in the past his output of honey would have been several tons more if he could have given his bees his undivided attention. Both Mr. and Mrs. Richardson prefer to live out on the ranch in the busy season. They camp out near the apiary they are working; and so pleasantly are the days passed that one of the apiaries is termed Happy Camp.

The majestic live-oak, the pride of all Californians, grows to perfection here, and the camp is sometimes made beneath its dense foliage. To give the reader an idea of the

size and habit of this noble tree I present a small photo of one. This tree is near the residence or home camp of Mr. R. It covers a space of 64 feet in diameter, and there is room for several families to camp beneath its branches. Mrs. Richardson is the central figure in the photo. Near her is a lady ready to mount her horse. This is the inevitable schoolma'am. No bachelors need apply, however, for she is a married lady. The other figures are the ranch superintendent and attendees.

Mr. Richardson has a host of friends, not only in the bee-keeping ranks, but throughout Ventura Co., and he is a man with whom it is



CALIFORNIA LIVE-OAK.

a pleasure to become acquainted. He is president of the Bee-keepers' Exchange, and early in its organization it was hoped that he could become its manager.

On the morning when I left the Simi Valley for Los Angeles I desired to take another route home, and friend R. directed me to return via the Canejo Valley. When I was about to start he gave me the information that I might have a gate or two to open. He was right in that, and from the twinkle in his eye he must have sent me that way in order to get the full benefit of gates. When I had traversed the few intervening miles of barren country to the county road, I had shaken hands with, so to speak, and paid my compliments to, four-teen healthy gates.

In the height of a good honey season, when the sages are in bloom and the hills and plains are carpeted with a profusion of wild flowers, the Simi Valley is a beautiful country and a pleasant camping place, and many people spend their outing in its quiet nooks. Adios, Simi.

VISIT AMONG THE BEE-KEEPERS.

BY H. R. BOARDMAN.

"What are you going to do, now your honey crop has failed?" asked a brother bee-keeper of me one day. I replied, "I will go on a visit among bee-keepers who have met with better success than I have; learn all I can of my industry; prepare my bees with confidence and courage, for the next season; look forward and not backward—hope."

I did not think then that my reply was prophetic.

My first visit was a wheel-trip to the well known bee-keeper and writer, Chalon Fowls of Oberlin, and with him to Rootville, to visit the Home of the Honey-bees.

Notwithstanding a heavy downpour of rain which interrupted our program of visiting the bee-keepers in the vicinity of Medina, which we had anticipated with so much pleasure, our visit was one filled with interesting incidents and pleasant surprises long to be remembered. If I were asked what interested me most of all I saw and talked about I would answer unhesitatingly, "The manufacture of comb founda-

tion with its various improvements." Mr. Weed, whom I had the pleasure of meeting, is devoting his whole energies and his life to the perfection of comb foundation.

"How about the Boardman plan of liberal feeding of sugar syrup before the beginning of the honey-flow to get the nectar stored in the sections? Has the plan been a success with you this season?" was asked me.

"I am as certain as ever that the plan is a success; but the season with me has been a failure, and I have secured no surplus, because there was none to get. It is a trying ordeal for my pet theory; still, I have the utmost confidence in it."

The evening was devoted to discussions of the various live topics of bee culture until quite late; and, although of much interest, to enter into their details here would be out of the question. We were treated with consideration and kindness not soon to be forgotten.

The next day, after sampling the good things on the lunch-counter, we decided to try to wheel back to Oberlin, notwithstanding the rain and mud that prevailed. We made a short but very pleasant call on Mr. Vernon Burt, a few miles out of Medina, where we got sight of some very fine and genuine this year's honey, which was truly refreshing, and where we also saw samples of work in the plain sections, with the fence separators, which were pretty near *perfection*. Mr. Burt thinks favorably of this method. He gives early liberal feeding credit largely for his crop of honey this season. Mr. Burt is a model bee-keeper. Our return to Oberlin through the mud was not relieved by many inspiring incidents. It was rather an exhibition of endurance than of skill.

My stay with Mr. Fowls will be remembered as a very pleasant and (I trust) a profitable day. Mr. Fowls produces mostly extracted honey; depends mostly upon his home market; takes pride in the quality of his honey, and expects good prices. He extracted some honey this season, but expects to feed for winter stores. I think he does not advocate this method as one of economy or profit. I was so well pleased with this trip that, a few days later, I packed my grip, and, with my wheel, boarded the train for a more extended



THE G. B. LEWIS CO.'S EXHIBIT IN THE APICULTURAL BUILDING AT THE OMAHA EXPOSITION.—SEE EDITORIALS.

tour among the bee-keepers of Michigan. I stopped in Toledo two days. In this time I visited many of the groceries and commission houses to learn what the season had produced in honey, and to make such inquiries as might occur to me in regard to it. These visits have proved a valuable source of information to me, and the grocer has, without exception, been very kind and considerate in furnishing me all the information in his power. "The workman is known by his chips" is not truer of the mechanic than of the bee-keeper. The honey found in the market is a sure index of the character and methods of the bee-keeper who furnished it; and I have been able to trace many progressive bee-keepers from the market to the apiary by this means. I found but little honey in Toledo, and that of very inferior quality, and but little disposition on the part of dealers to increase this stock at present. I should have looked some time before being able to make a satisfactory purchase had I wanted a section of honey for my own use.

There was more or less honey-dew in most of the honey that I examined. Much of the honey in the market is known as farmers' honey, brought in by farmers and slipshod bee-keepers—old and dark combs with untidy sections discolored by propolis. This inferior honey was being bought and sold mostly at prices but little below that of good grades of white honey.

I had intended to visit the Tri-State Fair in order to meet and make the acquaintance of bee-keepers; but on learning that this institution had very much depreciated in value to bee-keepers, and that they had pretty much abandoned their interests in favor of other stock, I changed my mind and went up to see Dr. A. B. Mason at his home, and spent a very pleasant hour chatting with him.

I think if a stenographer had been present to take our talk it would have furnished material for a good sized bee-journal, and I am sure it would have taken two stenographers, as we both talked at once in order to economize the time. When we shook hands at parting we both agreed that we were always better and happier for these meetings. The doctor was blessed with a liberal supply of honey-dew this season, and he was making some experiments in feeding it back, I think for winter stores.

On the morning of Aug. 25 I boarded an excursion train on the A. A. R. R., billed for Petoskey, Frankfort, and other points in Northern Michigan, and was soon flying along on my way through the Wolverine State. For the first hour's ride my attention was attracted by an unusual amount of bee-forage. There were a good many swamps and much swampy land, and upon all of this there was a great profusion of goldenrod, boneset, wild asters, and other fall bloom. Fields of buckwheat were also quite frequent. I think I saw more buckwheat in this locality than in any other part of Michigan. I felt quite a keen disappointment in not seeing more bee-hives from the car-window, for I felt sure that a valuable crop of nectar was

going to waste simply for lack of workers to save it.

The most notable feature of the day's ride was through the burnt pine country. The pine belt, as it is sometimes called, has been devastated by fire from time to time until this whole tract of country presents the most complete scene of desolation that it is possible to imagine. For miles together no signs of human life are to be seen—only blackened stumps and logs. This is the scene of the destructive fires of which we get or used to get the sensational stories not soon to be forgotten. In response to a feeble effort of nature, vegetation is timidly and slowly springing up again to replace that destroyed by the fire. In places a new growth of timber is seen springing up. At one place scrub-oaks appear; in another, pines; poplar in another place puts forth, and so on, perhaps, with many other kinds, each seeming to respond in some mysterious way to the conditions favorable only to its own growth.

East Townsend, O.

To be continued.

[Our friend Mr. Boardman called at Rootville just the night before I was to take my trip east among the bee-keepers. Had it not been for the rain and this projected trip the trio of us would have taken a general circle among the bee-keepers in and about Medina. As it was we made the best of it, talking bees up into the small hours of the night. I really wish we had had a stenographer, as many a thing was dropped that night that should have been preserved in a more permanent form. As friend Boardman says, if all that is said at a meeting of a trio of beekeepers could be printed, it would fill up a bee-journal. If friends Boardman and Fowls will favor us with another visit, and give us due notice, I will see that one of our stenographers is ready to "pot-hook" every thing said.]

There is nothing, I think, that so broadens the mind of a bee-keeper as to go out among his fellows. I have learned more by coming in contact with bee-keepers, and seeing and comparing their ways and methods for a few hours, than I have learned in months of time among our own bees.—ED.]

THE IDEAL SUPER.

T Tins vs. Supporting-slats; Ten-frame Hives and Half-depth Supers.

BY W. C. GATHRIGHT.

Dr. C. C. Miller:—I have read with great interest your article in GLEANINGS for May 15, regarding the Ideal super. This was especially interesting to me because I had been thinking for some time of sending you a description of my super. I was glad that you were so favorably impressed with the Ideal, because my super is exactly the same arrangement, only mine takes the regular $4\frac{1}{4}$ section.

I began bee-keeping about eight years ago, with T supers and wide frames. I soon discarded the latter, and, not being satisfied with the T super, I took out the T tins and put in plain slats. Later I began using section-hold-

ers, and have used them for several years ; but I am now making all my supers the same length as the T super, but with bottom-slats instead of T tins. Of course, I use cleated separators and plain sections.

You say that tins can be cleaned quicker than plain slats. I doubt this, if you take into consideration the time for heating water, etc. The plain slats can be cleaned faster than the section-holders, as I have tried both kinds. You can pile up the slats and sit down to do the work. There being no end blocks in the way, they can be handled very rapidly.

There is another advantage in the plain slats over the section-holders ; and that is, if one sags it can be turned over with the bow side up, so that the weight of the honey will soon bring it back to the right shape.

I am aware that the strongest point of superiority of the T supers over the section-holders is their non-sagging quality. But this superiority is not so great over the plain slats as over the section holders, provided the slats are not more than 17 inches in length. The section-holders being some longer, of course they are more liable to sag. Those end blocks on the section-holders always seemed to me like a useless arrangement for filling up vacant space. Your recent writings on the size of hives, etc., lead me to believe that you are not yet quite satisfied which is the best hive. Now, after having carefully considered your objections to the eight and ten frame hives I am going to suggest, not a new hive, but a combination, which seems to me to just fill the bill. It is simply this : On a regular ten-frame hive put a super with half-depth frames—that is, frames $4\frac{1}{2}$ inches deep. This will give you a hive equal to one having frames 13 in. deep ; and when you want to contract you do not have to divide the brood-nest in the middle, nor reduce the width of your brood-chamber, thereby lessening the surface for super room. Divisible brood-chambers are all right, but should not be divided in the middle, but a third of the distance from the top. Your two-story eight-frame hives are on the other extreme from those having frames five or six inches deep. I claim that neither principle is the correct one, but a combination of the two—that is, deep frames below and shallow ones above.

The hive I use and prefer has 9 frames below, $7\frac{1}{2}$ inches deep, and 8 above, $4\frac{1}{2}$ inches in depth. These frames are all made $16\frac{1}{2}$ in. in length, so they are just right for hives and supers 17 inches long inside. I adopted this length to do away with the useless space at the end of the regular supers, which are usually filled with end blocks on the section-holders.

If you find the above of sufficient interest I shall be pleased to read your comments in GLEANINGS.

Don Ana, New Mex., June 12.

[Below is Dr. Miller's reply.—ED.]

I can hardly believe that plain slats can be as easily cleaned by hand as T tins with lye, even taking into account all the time getting ready. It is true, however, they are much more easily cleaned than section-holders, and, indeed, the

cleaning of plain slats can hardly be considered a formidable undertaking. That they can be reversed in case they sag is a fact of some importance. Still, the fact that the weight of the sections will straighten out a curved slat is an admission of the fault that the weight of the sections will curve a straight slat. With the proper thickness of slat, however, and the right kind of lumber, the bending of the slats will hardly be a serious matter.

You may be right in your idea of dividing the brood-chamber one-third way down. The proof of the pudding is in the eating. I never tried ten-frame hives with a half-depth story added, but I have tried the same thing with eight-frame hives, and gave it up. Having two kinds of brood-frames not interchangeable is objectionable. Of course, if there are advantages enough to outweigh the disadvantages, that's another thing. With eight frames I didn't think there were.

The eight-frame hive is so much lighter to handle than the ten that I should be loath to change. Two stories of eight frames will give only a little more room than your $1\frac{1}{2}$ story of ten frames. There are times when the two stories give none too much room, and there are times when one story gives all the room needed. With abundance of super room, an eight-frame hive will accommodate a very large colony ; and if more brood room is needed it can be added beneath, from one to eight frames. A super for an eight-framer is pleasanter to handle than one for a ten-framer, especially if the sections are to be made deeper. The smaller the super the more likely are the sections to be uniformly filled at the same time.

Taken all in all, I have some doubt whether any thing will be found to meet all requirements better than the eight-frame hive, with the privilege of using as many stories or as many frames as needed, for one who is working for comb honey. Still, for one who does not mind their disadvantages there are good points about ten-frame hives, and for some, no doubt, they are better. C. C. MILLER.

Marango, Ill., Aug. 22.



COMB HONEY WITH LARGE HIVES AND LARGE COLONIES, WITH NO SWARMING.

Question.—Is it true, as I see advanced by some, that, if we use large hives, we shall have large colonies when working for comb honey, with no swarming? I see that quite a few are talking that way; and if this is a fact, would it not be well for us to drop all of our former notions regarding the contraction of the brood-nest, when working for comb honey, and give all colonies a great big hive, and so let the bees take care of themselves, very largely? for it is conceded by nearly every one that *labor* is the chief factor in the production of a crop of comb honey.

Answer.—All of the older readers of the bee-papers know that I have been an advocate of a brood-chamber as small as or smaller than nearly any one else, when working for comb honey, the same holding only nine Gallup frames. These nine Gallup frames give a capacity about the same as 6¾ Langstroth frames would; and from a brood-nest of that capacity I secured an average yield of nearly 100 pounds of comb honey for each of the years between 1872 and 1883, from each colony I had during that time, spring count—a record which has rarely been excelled, and never equaled, if I am right, by any of the large-hive advocates. But I am free to confess that, without doubt, more labor is required in rightly managing such small hives than is needed in the management of larger hives. But with me it always seemed that, from the extra amount of honey obtained, I always secured enough to more than pay for the extra labor expended; and if so, could the cry of “labor saving” enter into the problem? The question is, “Which will give the best returns for the amount of labor expended?” not, “With how little labor is it possible to run an apiary and secure any returns at all?”

But I wish to look a little at the statement often made, that “large hives will give large colonies, with little or no desire to swarm; and if any swarms do issue, they will be large swarms, not the little cramped-up things which always come from small hives,” or words of that import, which are going the rounds of the papers, and which are doubtless what is hinted at by the questioner. I can look upon such talk only as a fallacy which has been passed from one mouth to another till those telling it really believe they are giving expression to words of truth; for with those nine-frame Gallup hives, I had fully as little swarming as I have had with the ten-frame Langstroth hives, and the average of the swarms was not materially different as to size in either case. I am free to admit that, were each placed side by side, with no sections on, the ten-frame L. hives would probably be later in swarming, and send out larger swarms; but, if I am right, no one working on the contraction plan treats his colonies in that way. With the small hive or brood-chamber, the sections are put on as soon as any honey comes in from the field, and the brood-combs are manipulated till the whole nine are solid full of brood and pollen; and when in this shape, if any honey is stored at all it must go into the sections, for there is no other place for it to go. Thus started early in the sections, the bees become accustomed to their surroundings, and thus these fully occupied combs of brood entertain the best queen to her fullest capacity as to egg-laying; and, if so, how could a larger hive give any larger colonies, even though 100 L. frames were used? Large hives do not make large colonies any more than a large hat, worn all through our boyhood days, gives the world larger-headed men. If the queen has all the vacant cell room her prolificness requires, more room is only a damage to our crop of comb honey; for in the finding of many va-

cant cells in the brood-chamber, at the beginning of the honey-harvest, comes an “accustomment” to the brood chamber for storing honey, instead of the sections, and thus the queen is crowded upon with honey, instead of said honey going into the sections; and, with restricted room for her eggs, comes discontent, and from this comes the desire, and from the desire comes swarming, the very thing that we have been working to avoid.

Remember, we are talking about working for comb honey, or honey in sections, not extracted honey.

Some eight or ten years ago I was persuaded, through the urgency of a farmer bee-keeper living five miles from me, to purchase his bees, as he did not wish to bother with them any longer, so offered them to me for almost a song, and gave me the privilege of keeping them where they were as long as I wished, for 25 sections of honey a year. These bees were in ten-frame L. hives, and I have kept them in those hives, and at the same place, ever since I bought them, and thus I have had a chance to know about the workings of these hives as compared with the nine-frame Gallup hives of my home yard. The result has been that I can, by giving plenty of section room, hold these colonies at the out-yard back from swarming about a week later, on an average, than where the nine Gallup frames are used; but this out-apiary is no nearer being a non-swarming apiary than my home yard; and, in fact, I often consider them more determined to swarm than those are here; but the swarming comes a little later in the season. And this little later in the season has quite a bearing upon the problem of comb-honey production, from my present standpoint, for, when colonies are managed by the caging-of-queen plan, as I gave last winter (I think in the January 1st issue of GLEANINGS, but I have no time to hunt it up), this holding back a week puts them in just the right condition to take advantage of the honey harvest when it comes, with the largest kind of working force all kept together, with no desire to swarm after the manipulation. In this way I secured nearly 117 pounds of comb honey on an average from each of the 30 colonies there, this poor season, while those all about me, and that apiary, got little or nothing. But one thing I find, no matter what hive is used, or how many frames that hive contains, within the bounds of reason, either way, toward large or small brood-chambers, a given amount of labor *must* be performed, so that the “letting the bees take care of themselves” part of our questioner’s query is nearly or quite a myth, if we expect to reap any great success from our bees. This labor part has been harped on so much that it has become a sort of bugbear, and a desire seems to have sprung up for a “holding of the pot to catch the porridge” sort of apiculture. Let us away with such a thought, for “in the sweat of thy face shalt thou eat bread” brings the highest joy that is attained unto in this life. To whom come the greatest joy and contentment in life? Is it not to the one who has labored and toiled patiently, day after day, till at last the prob-

lem worked upon has been fully conquered and solved? And are not the discontented ones of our day those who are eating their bread from the sweat of the faces of others? No, no! there comes no real joy in rolling around in luxury while others toil to supply that *unearned* luxury which we are trying in vain to make ourselves believe is true happiness. 'Tis far more to our usefulness and happiness to "wear out instead of rusting out."

[It appears to me, friend D., that you have overlooked in the discussion above a very important factor in the whole problem, and that is the one of locality, else perhaps you would not be so ready to pronounce the opinions and practices of others "fallacious." Last week I called upon Mr. S. A. Niver, who is at present managing the estate of the late Miles Morton. Said he, "Doolittle's methods may be all right for his locality, but they would not answer at all in this vicinity. Miles Morton used to say that many a bee-keeper, if he were to remove to Tompkins Co., would have to unlearn many of his old methods and acquire new ones." In a bee-line there is a distance of only about 17 miles from Borodino to Groton. What must be the difference between other localities separated by hundreds or even thousands of miles? You have no buckwheat worth mentioning, in and about Borodino. Your main dependence is upon clover and basswood. In Tompkins Co., later in the season buckwheat is one of the main crops.

Even at our out-yard, only two miles north of us, I can see a difference in the conditions. Our north yard is near a river, with an abundance of fall flora. Our home yard has nothing of this sort to fall back on.

Now, if there is indeed so much being said in favor of large colonies, and a consequent reduction of swarms, there must be some localities favoring such colonies. There could hardly be so much smoke without some fire.

And there is still another factor I think you have not fully considered. If you were running a hundred or a thousand colonies you would have to operate quite a little differently from what you now do. W. L. Cogshall, whom I also saw last week, and who runs 1300 colonies, reiterated a former statement, that he could not afford to spend much time with individual colonies. He had to work on the wholesale plan. It was results he was after, in the shape of dollars and cents.

You say large hives do not make large colonies any more than large hats make large heads, as if you felt that some one had been holding to the affirmative. But even if large hats do not make large heads, may it not be true that bandaged feet may, as in the case of Chinese girls, make a nation of limping women? and, similarly, may not small hives make scrimp colonies? I think it is quite easy for us to combat opinions that are not entertained by anybody. Critic Taylor, of the *Review*, tried to make it appear that I believed that large hives would make large colonies, and you remember I said (page 519) that could be no more true than that big shoes

would make big feet; but it is true that big shoes allow feet to grow to their proper size. —ED.]



THE DOUBLE DECKER A SUCCESS.

I have taken off about 35 supers of nice rich honey from 13 colonies. We gave one swarm an extra body in spring when we took off winter cases. We just put it on top of an empty body, and gave a deep entrance to all the hives at that time. Our double decker gave us 7 supers solid full of honey; and after the supers were taken off there were so many bees we had to give them an empty super before they could all get in. We do not think that hive swarmed.

We like the deep entrance very much. Our bees used to send out about four swarms each, per season, some so late they would not live over winter, and we could get scarcely any honey from them. We think the new plan fine. I will have them all double another year. I was telling Uncle Thomas about the double-decker hive. He said, "Why, that's nothing. When I was down south during the war I saw the old farmers tip an old salt-barrel on top of their bee-hive. The bees would fill it full of honey, and then the owner would smother the bees and take the honey."

I don't see how a man like Dr. Miller can think it nice to winter bees in the cellar. Any one who can write so beautifully about roses and sunshine, and all that, and then condemn the poor bees to pass the long winter months in a cellar, is downright cruel. The idea of sweeping them up by the bushel from the cellar floor! For seven winters we have never lost one good strong swarm, that had enough to eat, by leaving them 'out in their winter cases. They have a good airing every sunny day. Of course, a good many fall on the snow, and die; but after all it is not so dismal as to die in the cellar. Do try to convert Dr. Miller to outdoor wintering. I believe he would feel a lot happier. S. A. ROBERTS.

Racine, Wis., Sept. 28.

[I tried to do it several years ago, but he would not turn from the error of his way.—ED.]

BEE-KEEPING MORE THAN SIXTY YEARS AGO; A LITTLE SKETCH OF MOSES QUINBY IN OLDEN TIME.

Dear Brother:—I am now an old man, and have handled bees most of the time for sixty-five years. I took my first lesson in improved methods in bee-keeping from Moses Quinby, of St. Johnsville, N. Y. I had heard of him and of his improvements in hives, etc., so I left my home in Massachusetts, and came to Troy, N. Y., trying to find Mr. Quinby. I learned that he lived up in the Mohawk Valley. I took a boat on the canal, and, after

some days, found the man I was looking for. I told him my business, and was at once made to feel at home, and I felt that I had found one of the most friendly, kind men I had ever seen. For two days the conversation was upon bees and hives; and the book he was then preparing for the printer, "The Mysteries of Bee-keeping Explained," I purchased, and as soon as it came from the press I became its owner, and was very much benefited by the visit and by the reading of the book.

Depauville, N. Y., Oct. 14. J. J. ALLEN.

[My good friend, the above brings vividly to my mind the time when I first got hold of father Quinby's first book. It was after I had read Langstroth, and had adopted movable-comb hives; but I was so much taken up with his plan of bee-keeping in box hives that I actually meditated starting a box-hive apiary; and I have oftentimes felt since then that it would be a very simple and easy thing to manage an apiary on Quinby's old plan. And he made money with his bees year after year, which is more than some of us have done in modern times, with all our modern appliances. Thank you, friend A., for your little sketch. That trip you made on the canal boat, occupying several days, could now be made in about as many hours, I presume.—A. I. R.]

THE V-SHAPED SLIT IN SECTIONS.

Have you room for a word from me regarding the V-slit section mentioned by Dr. Miller in a *Stray Straw* on page 610? This section, which has a longitudinal V slit in the sides and top-bar, and a groove on the inside of the bottom-bar, has become popular in England lately. The foundation is fitted after the section is folded, by just placing the section in a close-fitting block (which keeps it square), the slit being then opened wide, and the sheet of foundation—previously cut to the right size—dropped into it. The operation is completed by closing securely, at the top and sides, the slit in which the foundation is held, while at the bottom it is kept in its place by the groove on the inside. Thus these sections can be fitted absolutely full of foundation that can not break down or twist, with great rapidity, and without any special apparatus or skill. The point mentioned by Dr. Miller, that the slit, being V-shaped, does not show in the finished section, is a good one, but it may also be easily shown that the foundation is gripped better in a V slit with its sides converging toward the outside than in a plain saw-cut. Sections with a plain saw-cut down three sides have been known for a long time, and are mentioned and illustrated in Simmins' "Modern Bee-Farm," but I believe the V-shaped slit and groove in the bottom-bar are my own original ideas, brought forward three years ago, and sections embodying these improvements are known in England as "Sladen's sections." The Sladen sections were at first considered too frail for general use; but this objection has not been borne out by recent reports, and they have been found not more liable to break-age than ordinary sections. For a full account of these sections I refer you to the *British*

ish Bee Journal, 1897, pp. 431 and 486; also 1898, p. 236.

I have not lost my interest in wild solitary bees, and should be glad to exchange specimens with any entomological readers of this journal.

F. W. L. SLADEN.

Ripple Court, Dover, Eng., Sept. 1.

[In the absence of an illustration, perhaps it would be well to explain, in addition to what is said above, that the section is cut clear through the top and sides longitudinally with the grain, and the back of the square groove at the bottom, almost cut through, acts as a sort of hinge to hold the two halves together. The two parts of the section are spread apart at the top about as you would open a book, and the sheet of foundation is slipped in, dropped into the groove, when the two parts are pressed together, holding the foundation securely in place, very much as one would open up a book at about the middle, slip in a sheet of paper, and close the book up again.

I believe there can be no question that there are fewer pop-holes in the comb honey, and the same is better filled out, when there are full sheets used reaching clear out to the sides, top, and bottom; but in the case of the Sladen section the foundation is held securely in the V-shaped grooves in the top and two sides, and by the square groove at the bottom.—ED.]



The honey-flow in this part of Illinois was very good. I got from 75 to 100 lbs. per colony, comb honey. I have 24 colonies, and had only one swarm.

Clinton, Ill.

P. H. PEPPERKORN.

A GOOD HONEY-FLOW IN UTAH.

You don't say any thing about Utah honey, nor about the honey crop. There never was a better crop raised anywhere than the one we have had this season. I took from one colony 430 lbs. of extracted; 250 from eight or ten young swarms. I did not raise any comb honey. My average crop from 96 colonies was about 165 lbs. to the colony.

Vernal, Utah.

G. W. VANGUNDY.

AN UNUSUALLY GOOD YEAR.

I see from different accounts that there is a scarcity of honey in some parts of the States. Around here we have had an unusually good year. We had 38 hives to start with in the spring. We got 7000 lbs. of honey, of which 500 is comb honey.

Kingston, Ont.

JNO. LANGDON.

A. F. T., Kan.—It is certainly evident, from what you write in your letter, that there are fertile workers, and several of them, in the hive you refer to. The larvæ simply die, and we doubt if it would lead to foul brood.



THE LEWIS CO.'S EXHIBIT AT OMAHA.

ELSEWHERE we show the G. B. Lewis Co.'s exhibit in the Omaha apicultural building. This exhibit was one of the largest (if not the largest) displays of any of the supply manufacturers. It is oblong, and faces the main aisle going through the building.

The G. B. Lewis Co. have the reputation of making a very nice line of goods. They are prompt, reliable, and enjoy a very large trade with bee-keepers, particularly in the West. They are the pioneers in the manufacture of the one-piece section with V grooves, and have put thousands of dollars into special automatic machinery for making this line of goods. We have found them to be honest and fair competitors—certainly pleasant people for us to deal with. We wish them prosperity and a big trade next season.

A NEW WAY OF FACING.

I HAVE just been looking over a lot of honey that recently came in. At first I thought it was comb honey in plain sections; but on closer inspection I noticed that the edges of the sections had been split or whittled, making a no-bee-way-faced section. Opening a case I saw that the bee-keeper had actually cut away the bee-ways, or, rather, the tops and edges, of the sections whose faces were next to the glass. This brought the comb up close, giving it the effect of honey in plain sections.

I do not go into the ethics of this sort of facing; but it is sufficient to note that the bee-keeper who put the honey up thought that honey in plain sections would show off better than in the bee-way kind, so he resorted to the method of facing above explained. It certainly does add to the appearance of the honey, to my notion.

THAT BULL-FIGHT, AGAIN.

I HEARD indirectly from Harry S. Howe, Coggshall's "lightning operator," that, while the bull episode, represented on page 764, in our previous issue, was a funny kind of lark, it really lacked but little of being a tragedy. Mr. Coggshall told me that he did not care to reproduce the scenes again for the amusement of his brother bee-keepers.

It seems there were two "bull-fights," but the first time he went through the experience he says he was literally almost "scared to death," and for days afterward he scarcely recovered from his fright. When the bull came at him the first time out in the middle of the lot he realized that he was entirely alone, and a long way from any house. When that pair of gleaming eyes came nearer, and when that woolly head gave forth a mighty roar, he thought his end had come. But as he hitched along by degrees (for he said he knew it would never do to run) he spied his apiary, and then

a gleam of hope came. He does not know exactly how he got near one of those hives; but he says when he got where he could give one of his "professional kicks" he knew the battle was his. He "pressed the button" and the bees "did the rest."

TOO BLACK AN EYE; DRAWN FOUNDATION.

MR. WEED, who has just looked over what I wrote regarding drawn foundation, in an editorial in another column, and which is now on the press, thinks I have given the article too black an eye. He calls my attention to the fact that L. Stachelhausen, in our July 15th number, says he experimented with the same foundation, and found that the bees entered it much sooner than they did the old-style—that a good deal depends upon *the time of year*. In the earlier part of the season the bees show a decided preference for the drawn article; but later this difference may be less marked, as is noted in the experiments of Coggshall and Niver elsewhere.

The drawn foundation that I referred to, and which was tested by Niver and Coggshall, had cell walls only $\frac{1}{8}$ inch deep. If the walls had been $\frac{1}{2}$ inch deep, or $\frac{3}{4}$, the results would have been very different. The bees would then have had plenty of surplus capital to work on; at any rate, last season and this, where *deep* walls ($\frac{1}{4}$ inch or more) were used, the bees evinced a marked preference for the new article. Of course, there are certain objections to deep-cell; namely, the cost of transportation, on account of its great bulk, and also that other bugaboo, advanced by a few, that it looked too much like artificial comb, and therefore would give rise to the artificial-comb story.

WHERE GLEANINGS CIRCULATES.

IN going over our subscription-list, it occurs to us that our readers may be interested in knowing the extent of the circulation of GLEANINGS. Here at home we have readers in every State and Territory. Just over in the Queen's possessions, GLEANINGS visits many homes in six provinces from Nova Scotia to British Columbia. To the south it goes to Mexico and Central America; in South America, to four countries. Between these countries we have a large number of readers in the different islands of the West Indies. Crossing the Atlantic, in Europe alone GLEANINGS goes to nineteen different countries, and has a number of readers in South Africa. Via the trans Pacific mails it is hurried to China, Japan, India, Siam, Australia, New Zealand, Tasmania, Hawaii, and other islands.

When our friends in Norway and Sweden are reading this their bees are likely in winter quarters, while those in South Africa, South America, and Australia are no doubt in the midst of their honey harvest.

EFFECT OF CUBAN HONEY ON THE HONEY-MARKETS OF THE UNITED STATES.

WHEN I visited Mr. Coggshall he expressed some fears that Cuban and Porto Rican honey could now, under the new order of things, be

produced and shipped into the New York markets at a price so low that it would very materially affect the price of York State buckwheat. Even under the old order of things he had found that Cuban honey was somewhat of a competitor; but now he was sure it would be a serious one.

"What are you going to do about it?" I said.

"Can't do any thing, unless it is to run for buckwheat comb honey or go out of the business."

At the Omaha convention no one seemed to fear that the honey from our newly acquired possessions would make any serious trouble with the dark or amber honey of the United States; but the fact is, there was no one at that convention who was in position to know the facts.

I should be glad to receive communications from those of our correspondents who can give us any definite information. We expect to have a series of articles on Cuba and Porto Rico soon, from W. W. Somerford, illustrated by means of a camera. Perhaps these will give us some information along these lines.

HOW PLAIN SECTIONS COMPARE WITH THE OLD-STYLE IN THE MATTER OF GRADING.

I HAVE just received a note from Byron Walker, who, as I have explained, not only produces large crops of honey himself, but is a very large handler of honey produced by others. His sales every winter run up into the thousands of pounds. He probably knows as much about grading as any bee-keeper in the United States. Well, here is what he has to say regarding the grading of plain sections as compared with the old-style:

I forgot to state to you, when you were asking me if I had handled any of the no-bee-way sections, that I found the honey stored in them entered into the fancy grade in much larger proportion than that stored in the old style sections.

B. WALKER.

Evart, Mich., Oct. 14.

A higher grading means a higher price, and this simply reiterates what I said last winter; namely, that it seemed to me that the plain sections *must* bring a higher price in competition in the open market with old-style sections with bee-ways. I knew that those who sold them last year, and, in fact, a good many years before that, were realizing higher prices, and I did not see any reason why others could not get them. Mr. Walker is not a man who would be prejudiced in favor of plain sections, and I should regard his judgment as entirely unbiased. This, together with the statement of the Columbus Commission & Storage Co., which I published a short time ago, to the effect that they could get a higher price for honey in plain sections, and wanted to get more of it, rather goes to show that I was not premature in suggesting that higher prices could be obtained for the new line of sections.

But I do not wish to be understood as saying that I believe higher prices can be universally obtained; but I think I am safe in saying they will hold their own, and many times realize higher prices.

SELLING HONEY.

A FEW days ago I made a pleasant call at the home of my cousin, Wilbur Fenn, of Tallmadge, O. When I get around to it I have something of a potato-story to tell, but just now I want to tell a story about selling honey. Cousin Wilbur took a little pains to inquire of his neighbors, and got orders for six gallons of honey, and then sent in his order. Now, six gallons makes an odd package; but ten one-gallon cans make a complete package. Our people sent him *ten* gallons, and I fear they did so without making any explanations, and without his permission. When cousin Wilbur arrived at the depot, and found ten gallons, he was a little afraid he would not be able to get rid of it all without some trouble. Accordingly he asked the agent at the depot if he did not want some nice honey; but the agent did not think he did; but after Mr. Fenn whittled a clean piece from a pine stick, dipped it into the honey, and gave the agent a taste, he took a gallon right off. Then he went to a prominent grocer in Akron with the same result. The grocer did not want any at all until he tasted it on the pine stick, and then he wanted a gallon. On the way home he tried the same experiment with some people he chanced to meet, whom he knew, and I think he made a sale every time. After he *got started* in selling honey, it was an easy matter to keep right on. As a result he almost had to quarrel with a neighbor so that he could reserve one gallon for home use.

A few days ago I saw Mr. Herman F. Moore, the honey-man of Chicago. He had a lot of thin clean slips of wood—I think they call them cigar-lighters. He goes from house to house with a clean tin pail of honey. One of the slips is dipped into the honey, and given to the people to taste. He sells the honey only by the pailful, and takes great pains to have it exactly like the sample he is showing. A sort of city express delivers the honey to the houses, collects the money, and brings it back for a very small sum, so friend Moore has nothing to do but to give his customers a lick and take orders. Cousin Wilbur struck on the same "racket," you see, and that is the reason why he did not have honey enough to go around. Perhaps I should add that the ten gallons of honey was water-white California mountain sage; but he says the light amber takes about as well, and with some people better than the water-white.—A. I. R.

THE FATE OF DRAWN FOUNDATION; LEVELING DOWN SECTIONS; DOES IT PAY?

ABOUT ten days ago I made a trip east to learn more about plain sections and fences. For that matter, I made another one west, with the result that I collected a fund of information which I will give with illustrations a little later. Suffice it to say for the present, that the only way to get reliable information, it seems to me, is to go where the honey is produced in plain sections; inspect the honey in the cases just as it comes from the hive, and after it is prepared for market.

On this trip I called upon Mr. S. A. Niver,

brother-in-law of the late Miles Morton, at Groton, N. Y. I spent a day and a half in looking over plain sections and fences again. There were a number of things we talked over, but it seems there were some little matters that we did not discuss as we intended to; the following letter, therefore, will explain itself:

Dear Friend:—After all, we forgot to sample that bitter honey, and also forgot to look for the difference between honey finished from drawn combs and foundation. Fully a third of the honey you saw was built on old combs, and not leveled at all. I put in some time, two years ago, leveling Morton's "pice boxes," about 800 of them. My lot at the North Star Apiary had to go without it—no time. At the close of the season you couldn't discover any difference, so we voted it labor lost, and you couldn't tell which was which on this year's honey.

I have been getting out the wax from my cappings to day, and found 60 lbs. of honey candied solid in the bottom. What would you do? Well, here's what I did. (The honey was full of cappings, of course.) I rigged up a double boiler, and ran a steam jet into the outer one, which had water in it, and boiled the whole mass until the wax melted, and have left it to cool. How will it come out in the morning? and will that honey lose a little buckwheat (rich old buckwheat) flavor? You guess, and I'll report. S. A. NIVER.

Groton, N. Y., Oct. 19.

I will explain that we sent to Mr. Morton, then living, and to Mr. W. L. Coggsall, half a pound each of the new drawn foundation with natural bases, wishing them to test it in the buckwheat honey-flow. Without going into details, I would state that the results of these tests showed no particular advantage in the use of drawn foundation over the ordinary. Supers, both at Niver's and at Coggsall's, were shown me that had been on hives for four or five days, and in each case the ordinary foundation kept about an even pace with the drawn. I can account for this result only on the ground that common foundation has a great deal of surplus wax in the wall, and this the bees evidently consider as so much ready capital to work into cell walls. The other, the drawn, of course, had walls drawn out about $\frac{1}{8}$ inch deep, but they were nearly as thin as natural; and when the bees began work upon them there was no surplus material to draw, so that, in working drawn foundation, they have to utilize their own wax, which, taking time, offset the advantage in having cells partially completed.

These tests at the apiaries of Morton and Coggsall have been confirmed by reports from bee-keepers in other portions of the country; and notwithstanding the fact that we have put a large sum of money into dies for the manufacture of this product, we feel that the truth must come out, even if it does, apparently, as I think it does, put the article about which we entertained such high hopes on the shelf. Mr. Weed and ourselves went at it in good faith; but, as I stated in advance, if it did not prove to be a success, we would not try to push it on the market. We feel that we could overcome the difficulties of manufacture; but if the bees show no particular liking for it over common foundation, then that settles its fate. *Requiescat in pace.*

But in all this experimenting we have learned a good many valuable kinks, and these we hope to incorporate into the foundation of the future. Mr. Weed is at work on a new set of dies, for which we have even greater hopes

than we had for the drawn foundation; and with these dies we propose to make a sort of combination of common and drawn foundation that will eliminate the objections to both, and be very much superior to either.

Referring to the drawn comb leveled down and not leveled, Mr. Niver said nothing about that whatever. I had always supposed that the leveling down *à la* Taylor did away with thickened and soiled edges on the top of the cells, and that the bees, therefore, were compelled to make clean new edges or practically clean new comb. I should like to get the testimony of others on this point. For pity's sake, let us do no work that is unnecessary.

With regard to the wax in the honey, my opinion is that Mr. Niver took just the right course in separating the two. If the honey had been white clover it would be darkened somewhat by the process, and the flavor would be a little impaired thereby; but inasmuch as it was only buckwheat, there would be no impairment, either in the way of color or flavor—at least, not enough to be noticeable. Now that I have put in my guess, we await your report.

FENCE SEPARATORS; VENTILATION; TAYLOR'S CRITICISMS.

IN the last *Review* Mr. Taylor, referring to the article by J. A. Golden, pages 689, 690, especially to the illustration, says:

I am not going to call in question the claim that the kind of separator makes a difference in the color of the cappings of comb honey. That may or may not be a fact. What I wish to protest against is the sort of evidence used in the effort to establish the fact.

I do not find anywhere that Mr. Golden set up the claim that the fence was the cause of the whiter honey in 1 and 2, as against the dark honey produced in old-style sections and separators shown in 3. On the other hand he says, "I have my own idea as to the cause of so much difference in color, but I want to read the opinions of our learned apiarists—yes, and a footnote also, Mr. Editor; then I will be honest in writing my opinion as to the reason above referred to." Mr. Taylor will observe that Mr. Golden reserved his opinion. Then if he had quoted the whole of the statement in my footnote, instead of a part of it, he would not have made it appear that I too was setting up the claim that the fence was the cause of the whiter honey shown in engraving. Referring to the color of the three tiers of sections, I did say this: "I should imagine the difference would be so slight as to be almost inappreciable to the eye."

This is not the first time that Mr. Taylor's prejudice makes him fall into the error—just the one he condemns in Doolittle on the next page—of misquoting his opponent in discussion; or, perhaps, more correctly, making him say more than he actually does by quoting him in part and making that part stand for the whole; or, to put it another way, set up a man of straw, and deliberately knock it over—a very common and easy trick on the part of men of less mental caliber than Mr. Taylor.

As to my opinion that the fence gives freer ventilation, and, consequently, better ripening of the honey, Mr. Taylor asks, "Would

an empty wicker chair standing in a room give better ventilation?" I am surprised that he should use an illustration so crude, "the pertinency of which," to adopt his language, "in my view I am unable to discover." The old-style section-super consists of a number of compartments nearly shut off. The new style has the same number of compartments, but with the sides (separators) perforated with horizontal openings affording air-spaces or passageways from one compartment to the other. When we pile lumber in a dry-kiln we pile it so that the hot air can pass between and around the boards; that is, we leave air-spaces between the boards. The freer the communication between the boards the quicker and better the lumber dries. A section-super is a sort of dry-kiln. The fauners keep up a circulation during the ripening process. Obstruct their air-currents and you defeat, to a limited extent, the rapidity of the work. This is not all theory, because we have reports already, right from the field, to this effect. For example, the following, from W. C. Gathright, is a case in point:

This season about half of my apiary was supplied with fences and plain sections; the other was run with the old-style sections and separators. Supers with the old-style sections were put on first, part of them being filled with empty comb yet I got considerably more of the plain sections finished than of the old-style. There is no doubt about bees working faster in plain sections with cleated separators. They enter them and begin work almost as readily as they would in extracting-supers. This is the second year I have used them, as I tried a small number last year, and the result is that I shall not use any more old-style sections. My separators are made of three slats, and are $3\frac{1}{2}$ inches wide, having openings $\frac{1}{8}$ inch between the slats; and the top of the separator is $\frac{1}{4}$ inch below the top of the sections. I consider the passage over the top of the separator of more value than those in the center. They finish up the honey, and seal the top row of cells next to the wood better than they do with separators that come to the top of the sections; then in tying up it gives a larger opening and a freer passage from one super to the other.

I do not believe there is any danger of bulging over the separators, for I have never seen a single one that was bulged. W. C. GATHRIGHT.

Dona Ana, N. M., Sept. 26.

Again, Mr. Taylor, referring to the same illustration, says:

The most remarkable thing in the photograph is that the sections all appear to be rather scantily filled. From the claims heretofore made for plain sections and fences I have been looking to find the sections filled nearly solid.

A good deal hinges on what he means by "rather scantily filled." If I am any judge (and we buy thousands of pounds of comb honey every season), the sections under consideration are fairly well filled, and those in 1 and 2 are equal to nine-tenths of the ordinary No. 1 honey in the open market.

As to the last sentence above quoted, there may be partial ground for his expectations. After all, I can scarcely escape the conclusion that, even then, our friend has, in accordance with his usual failing, read more into (or out of) what he has read on the subject of plain sections and fences than the subject-matter would really warrant. Any advocate of plain sections who would go so far as to broadly claim that they would be "filled nearly solid" would be laying himself open to ridicule. Perhaps the illustration of the Aspinwall honey was misleading. If so, it made its first

appearance in the *Review*, and its editor said as complimentary things about plain sections as have been said by any one.

It will now be in order for Mr. Taylor to "protest against" the "sort of evidence used in the effort to establish" the superiority of plain sections. If it were fair to use the illustration that appeared in the January *Review*, I can't see that the reproduced photograph in *GLEANINGS*, on p. 690, was out of place when neither Mr. Golden nor myself claimed that the fence was responsible for the difference.

QUEENS LAYING IN THE SPRING.

Referring to the statement by Dr. Miller, to the effect that he never knew any exception to the rule that, left to nature, a queen enlarges her brood-nest in the spring by laying eggs outside the cells already laid, Mr. Taylor asks me to explain what I meant when I said I thought there was an exception to even this rule. In rare instances a young queen may lay eggs very scatteringly; that is, eggs in cells here and there. I know of one or two instances where those scattering eggs were in separate combs. As I remember it, the queens were late fall-reared, and, being probably fertilized in the fall, did not lay till the following spring, and then in the manner stated. After a week or so these queens began to lay as they should. It is quite a common thing for imported Italian queens, immediately after being released from the introducing-cage in the summer, to behave thus; but it is not common for any queen in the spring. Mr. Taylor should not forget that I was talking about "freaky things," not regular queens.

JOURNALISTIC COURTESY.

I am sorry to see that Mr. Taylor mars some of his criticisms by what I may call the lack of journalistic courtesy. For instance, in speaking of Doolittle this is what he says: "His statement, backed by the strength of his name, furnishes what the editor of *GLEANINGS* would call 'heavy testimony.' I care not for myself; but the sarcastic reference to Doolittle's name is uncalled for. It adds absolutely nothing to Taylor's argument, and should have been, in my judgment, like other similar flings, stricken out by the editorial pencil before it saw the printer. That I am not alone in deploring such things in Mr. Taylor's writings will be evidenced by the following extract from the *Review* by a writer who, though believing that criticism is needed, says:

When I saw the first installment of Mr. Taylor's criticisms I experienced a feeling of antagonism, although I had not yet read it, on account of his *previous* utterances. It may be that others have felt the same. To an inquiry in the *American Bee Journal*, asked in good faith, he replied, "Poppycock." When E. R. Root misunderstood one of his experiments he alluded to "the gray matter of the brain." When Mr. F. Rauchfuss criticised another, he remarked that he was "writing for bee-keepers who think." I consider these remarks uncalled for and ungentlemanly.

I do not refer to these with any desire to strike back; but if those criticisms could be shorn of that "disagreeableness" that Dr. Miller tells about, they would do vastly more good. Mr. Taylor's work is too good to be marred thus.



YELLOWSTONE PARK, CONTINUED.

I have before remarked that, on reaching each new camp, I was very particular to find out about the drinking-water; and at almost every stopping-place I made friends with the cook, and got permission to help myself from the tea-kettle whenever I wanted a drink. At Upper Geyser Basin, however, I found in my tent, when I came to retire, a good fire in a box stove, and a tin pail of very clean-looking water on my wash-stand. I tried some of the water to see if it would make good soapsuds, making sure it was soft; and, having been told they got all their water for drinking and cooking at a soft-water spring up in the woods, I naturally concluded this must be that same pure spring water. So I warmed some on the stove, and had a good drink just before going to bed. I felt somewhat distressed during the night, but was up by daylight, made a fire in my stove, and took another drink of hot water. Then I looked out of the door of my tent and saw our host carrying two brimming pailfuls of water, steaming hot, from a geyser near by. Yankee-like I was inquisitive, and he informed me that it was cheaper to bring hot water from the boiling springs than to heat it on the stoves. Besides, the *spring* water had to be hauled quite a piece with a team. He filled the pails with hot water all around the tents just before the guests arose. Said I:

"But will this geyser water wash nicely with soap?"

"Oh, yes! it washes beautifully. Didn't you try it this morning in your tent?"

Just then it occurred to me that I had taken two big drinks of *geyser* water, thinking it was soft water from the springs. But I ventured one more question.

"You say it is nice water to wash with; then why is it not good to drink?"

"Oh! it won't do to drink at all. I suppose it would kill anybody to take a good big drink of it, as it contains so many minerals."

I did not ask any more questions. In fact, I went off and sat down by myself, and thought I would wait and see whether I was going to die or not. Well, I did not die—at least not at that time; but I was rather uncomfortable all the forenoon.

When somebody mentioned that there was a rustic bath-house away down in the pine woods by a hot spring, I concluded I would take a bath. The path was a winding one through clumps of bushes and beautiful wild flowers scattered all along the way—a veritable sylvan retreat, in fact. When I reached the spot I found the curtain up in front. A wooden bath-tub occupied one end of the tent. Two streams of water flowed into this bath-tub—cold water from a wooden trough, and hot spring water from an iron spout. Either spout could be shifted so as to pour off

at the outside or on the inside of the bath-tub; and thus one could have just the temperature desired. You could cover yourself all over with lather from the soapsuds, and then you could rinse off the soap, not only once, but twice or thrice, for there was "oceans" of water, almost, running away constantly. But, didn't I enjoy that hot-spring bath? If you pull the curtains down and tie them up tight, the temperature inside of the tent soon rises not only up into the 90's, but far above that. It was like that greenhouse I told you about in our last issue. I rather think I had the advantage of the rest of the party, for I had an *inward* cleansing with geyser water, as well as an outward one.

The trip from Upper Geyser Basin to Yellowstone Lake, the greater part of the way, was one of the finest in the park. I regretted a good many times that I did not stick to my wheel so I could take in the beautiful scenery a little more leisurely. One of the most beautiful scenes on the route is Kepler Cascades. Here is a fall of something like 150 feet; but the water, instead of dropping straight down, passes over a series of shelves, making little falls. With the beautiful forest surrounding, the wild flowers, and the birds, it is one of the prettiest bits of scenery I think I ever found. About half way to the lake, on some elevated ground, there is a view of the Teton Mountains, fully fifty miles away. There are three snow-capped peaks called the Sentinels. These form part of the boundary between the States of Wyoming and Idaho, and they rise to the tremendous height of 14,000 feet. A beautiful view of Yellowstone Lake can be had from the roadway, some little distance before it is reached. Yellowstone Lake is away up in the mountains, and it is no trifle of a lake either, for it is something like 15 miles wide and 20 miles long. It is the largest body of water in North America, at so great an altitude—almost 8000 feet. We do not know how many hot springs and geysers there are in the lake, under water; but we do know that there are multitudes of them all round about the lake. A beautiful steamer, built somewhere in the East, has been, at much expense and immense labor, transported to the waters of this lake. Tourists can take a boat-ride across the lake, or they can go with the driver in the coach around the shores.

On an island well out in the middle of the lake, called Dot Island, is a sort of park, or zoological ground, where may be seen running wild a few buffalo, some elk, and some mountain sheep. The captain of the steamer has charge of them, and does the feeding, for the entertainment of the visitors while the steamer makes a little stop. There are quite a number of islands on the surface of the lake. With all the hot springs in and around the lake, it is not astonishing that quite a river constantly flows out from it. I have told you about the fish already, in my bear-story to the Sunday-school class.

At the camp near the lake we went out in the morning and found wild strawberries; and by following the little mountain brook that supplies the camp with pure soft water we

finally discovered a beautiful little spring away up among the hills — the source of the little stream.

While taking dinner we heard numerous reports from travelers and others, to the effect that Mud Volcano was on a "rampage;" in fact, it was belching forth to such an extent, and shaking all the earth around, that it was said travelers almost hesitated to venture by on the road. About 2 o'clock we reached the spot. Quite a crowd for that remote region was gathered about the puffing monster. In the side of a hill near the roadway there was a great pit, perhaps fifty or sixty feet deep. The pit was so much filled with steam, however, that it was only occasionally one could look down into its awful depths. Every now and then the steam seemed to gather force to throw out great blocks of mud that seemed constantly settling back again into the crater. Sometimes the mud seemed to have the upper hand, and the crater was closed or choked up; but by and by, with a great upheaval, out would come chunks of mud, some of them about the size of a common cook-stove, which would be belched forth away up into the tree-tops. Then the spectators would have to dodge, for these chunks of mud were boiling hot, and would have scalded as well as soiled. There was a pathway up along one side of the pit; but to get on the other side, where the wind blew the steam away, we had to cross the highest point of the crater. A good many, in their hurry to see the sight, would take a short cut near the brink, and it occurred to me it would be nothing at all strange if that soft earth where people were constantly tramping should cave in and slide down into that awful crater. There was something wonderfully fascinating about the operations down in the boiling pit. At every explosion the ground would shake so as to make the trees fairly quiver where we were standing. I got hold of a little shrub, and was peering over into the abyss. While I looked, a portion of the side-hill on the lower side started to move and slide down into the crater. Finally, down it went, and the breathing orifice of the monster was shut up with mud. Then the steam slowly gathered strength and volume, and then out the mud came with a terrific explosion, only to slide back after a while and repeat the program. I heard the women scream to us to come away; and just after the last explosion I looked up and caught sight of the face of my good friend Mrs. Penwell. She was as white as a corpse, and the look of agony and distress on her face startled me more than did the boom of the volcano. I came away at once, and said, "My dear friend, for *your* sake I will come away, although I do not think there can be any great danger where your husband and I were standing."

The lady was right; for, while Mr. P. and myself could probably take care of ourselves, we were setting a bad example to others; and I should not be at all surprised to hear that some person, or perhaps a crowd of people, have gone down into the boiling mud in their eagerness to see a little more of the fascinat-

ing scenes going on down in that terrible crater.

Our trip during the remainder of the afternoon was mostly along the beautiful Yellowstone River. We saw tourists fishing every now and then; and almost every angler seemed to be rewarded with great trout, as large as he could well pull ashore, and some of them larger, in fact, than the fisher's children could readily carry along.

Quite a little before night we reached the camp close by the falls, and almost on the very brink of the Grand Canyon of the Yellowstone Park. I did not enjoy the sight of the falls nor of the canyon as much as I might have done otherwise, for two reasons. First, I was not well enough to clamber up the dizzy heights. Secondly, I lacked the inspiration and enthusiasm that always go with me when riding my wheel every day. Now, I do not know how it is with other people, but with myself my physical make-up (or that other fellow who goes along with me that I have talked about) absolutely refused to recognize the awful depths that stretched before us as we looked down. You understand, I take it, the sense in which I use the word *wie*. I climbed down to the brink of the upper falls, and looked over. The guide says the water falls 140 feet; but this fellow I have told you about insisted that it was not more than 40 feet, without the hundred. When I tried to pitch a stone over, however, it seemingly refused to drop straight down, but kept drawing back toward my feet or under them. I saw the foaming and seething water below, but there did not seem to be anywhere near the quantity that there was in the river as it dashed over the cliff. The Great Falls lower down is 360 feet — perhaps a little more than twice the height of Niagara; but when one looks down to the bottom of the canyon the distance does not seem to be at all astonishing. Of course, the things down there have a very strange look, and the water at the bottom of the falls seems to run off into the surface of the rock. At Inspiration Point, three miles below, this thing I have mentioned seems to be a little more emphatic. The eye, the judgment, and the imagination refuse to accept the awful truth. All of our senses are unaccustomed to any such tremendous depths and distances. You may throw a stone as far as you can, at Inspiration Point, but it disappears somewhere, and you never hear it strike. In fact, you can not even hear the roar of the cataract. There is a place where tourists can go down by the aid of a guide, with a rope, to the foot of the falls, and the stoutest of our party took this trip while we went up to Inspiration Point. While we were standing there, and trying to take in the distance, one of the ladies suggested that we might see the men-folks down at the bottom of the falls. By looking intently we did see some little specks like ants moving about. One of the party suggested that it was the men in their shirtsleeves. Then we saw the rope attached to a pine-tree where they let them down the side of the cliff. When we finally realized that these microscopic beings

were the men of our party, *then* we began to have some conception of the enormous distance. Fix your mind on some object about a third of a mile from where you are looking, and then try to realize that Grand Canyon is just so deep *straight down*. For instance, the river below looked to us, where we stood, as if one might jump across it. On our return one of our men said that a pretty good man could just throw a stone across the stream. What looked to us to be but little more than a brooklet was a raging torrent or river as far across as one can well throw a stone. Numerous hot springs were sending their waters out along the side of the cliff to join the mighty torrent.

I have not used any views of the falls nor of the Grand Canyon, for no camera can do justice to such things. The instrument, like the human eye, fails to grasp or tell of the awful distances. The river at the bottom of the canyon seems to come out of the side of the mountain. It runs a little distance, and then apparently runs into the solid rock again. The guide tells you there is a passageway through the rocks, but your stubborn senses say there is no such thing—that there is a solid, smooth rock, without any canyon or opening for the river at all.

The number of hot springs that empty into Yellowstone River along through Grand Canyon actually raise the temperature fully twenty degrees. We greatly regretted that none of our party had a field-glass nor even an opera-glass to help us take in the wonderful view spread out before us. The colors on the rocky cliffs all along the Grand Canyon, especially those seen from Inspiration Point, are, when illuminated by the sun at the proper angle, simply gorgeous. A beautiful display of autumn tints from a forest of maples gives one as near an idea of it as any thing I know of.

Lack of health and strength prevented me from making explorations that I otherwise would have made. On the point of one of the inaccessible crags we saw an eagle with her young near the nest. The eaglets were nearly old enough to fly, and we could imagine the mother pushing them off, and then bearing them up as we read about when they are unable to make the point desired.

travels, and, in fact, that my usefulness for *any* thing was pretty much over. He whispered that the wonderful revelation of latter years, the "second wind," was all right for younger people, but that, after a man was toward sixty, he was pretty well past such things; and I do not know but I got into the rut that I was not going to live very long, and that I should probably be miserable the rest of the time I did live. Dear reader, does Satan ever tempt you in that way? I felt a good deal discouraged that forenoon. Right where I should have been finding so much enjoyment in studying God's wonderful works I was not happy. Then Satan kept on. He said this world did not amount to very much, any way; that I had seen pretty much all of it, and had wasted lots of money in doing so. He suggested that I was losing my power and influence as a writer, and that I might about as well give up the Home Papers, for I should have to pretty soon anyway. Do some of you inquire where that little prayer of mine had gone to that it should be entirely out of sight at such a time? Well, it did finally begin to assert itself; and, even if I was too weak and indolent to utter a prayer, I heard its familiar ring, "Lord, help."

The easy coach was just coming up to the beautiful Wylie camp. I sprang out, and went straight to my little tent. I tied the curtains up close, although it was a beautiful warm day, and knelt on the carpeted ground beside my little bed, and prayed. The thought embodied in our little text was uppermost in my mind. I do not know just why, but that word "strength" took a wonderful hold of me. We were right in the neighborhood of Mt. Washington; but I had to give up climbing it, because I did not believe I could stand the trip. I had tried climbing some down in the Grand Canyon and up the cliff, but both strength and enthusiasm seemed lacking. I closed my little prayer with an earnest appeal for physical strength. Perhaps my words were something like these: "O Lord, if it be consistent with thy will, give me *physical strength*. Forgive my want of faith, and rebuke the tempting spirit that has been round about me, by giving me physical strength that I may honor thee during the rest of my life, and serve my fellow-men."

Now, I did not at once feel any stronger after that little season of prayer all by myself, but I felt a degree of peace I had not enjoyed before during the day. I felt that I could trust my heavenly Father. I made a strong resolution not to borrow trouble, nor to worry about the future. Early in the afternoon our coach would reach Norris Basin, where I had left my wheel. I asked the driver if I might try the wheel for a mile or two, and see if I was strong enough to ride it, and then have him pick me up if I couldn't. He suggested that, if I was in doubt in regard to the matter, I had better ride all the way in the coach, for it would be considerable trouble to tie the wheel on, and they could do it better at the stopping-place than anywhere else. There was a temptation to choose the easy way of riding in the coach, that would not require



God is our refuge and strength, a very present help in trouble.—PSALM 46:1.

I have just been telling you that I did not enjoy my trip at the great center of Yellowstone Park, the Grand Canyon, as I should have done had I been in better health. So far during my visit in the park, my wheel, on which I had depended so much, had given me but little pleasure or satisfaction. During the forenoon Satan had been whispering that I was getting to be too old to enjoy scenery or

any exertion. Then I thought of my prayer for strength. I told the driver I thought I could ride the wheel so as to get into camp before dark, anyway. I sprang from the coach, found my wheel all right, and as I got hold of my faithful old friend my spirits and enthusiasm began to revive. Just ahead of us was quite a hill, and it was sandy and dusty besides. I supposed, of course, that I should have to walk up that hill; but as soon as I was mounted, the wheel actually seemed as if the inanimate thing was tired of standing still, and wanted to go. I reached the foot of the hill, and then had one of my "happy surprises" as I rode up without a bit of trouble. I was soon out of sight of the stage, and in a very little time a strong healthy second wind took possession of my whole being. I laughed outright, and sang hymns of praise as I climbed every hill along that beautiful road. I kept thinking of the words of scripture, describing the horse: "He paweth in the valley, and rejoiceth in his strength." I came up to Obsidian Cliff just as the sun was in the right position to make it sparkle. See page 738 of our issue for Oct. 1.



OBSIDIAN CLIFF.

Down in a corner at the left hand you will see one of the white mile-posts that the government has placed all along the roadway. This mile-post tells all the distances, and also records the altitude. Near the roadway, in the middle of the cut, is one of the telegraph-poles supporting the wire put up by the transportation company. No wonder the road is as good as it looks to be in the picture—a beautiful smooth path—for it is made mostly of pounded glass. You will notice some pine-trees on the top, growing right out of this flinty rock, apparently, and it is indeed wonderful to see trees wedging their roots into crevices, and growing thriftily where there does not seem to be any thing for them to live on.

A little before sundown I wheeled into Willow Park. In fact, I ran right up before one of the young ladies just as she had opened her mouth to announce that supper was ready. After the exercise that I had had, this announcement was of itself refreshing. Not only did the young lady look good and beautiful, but I seemed to have fallen in love with

all the people and the surroundings. My appetite had come back, and I was well and strong. Oh what a *boon* is physical strength, and a consciousness that we are possessors of muscular *power*! When under the influence of second wind it is always a delight to me to climb hills, but I think I never enjoyed climbing hills more than I did that afternoon; and I did not forget to give thanks that my prayer had been answered. Oh how differently I felt! and how ashamed I was of the ungrateful and silly thoughts of the former part of that day! Some of you may ask, "Why, Bro. Root, why didn't you think to pray for strength before giving up your wheel and riding in the coach?"

Well, to tell the truth I either did not think of my little prayer or else I asked God for help with such a lack of faith that no wonder strength was not given me. I have felt many times since that I might have ridden my wheel clear through the park, despite the great altitude and mountains to climb; and, Providence permitting, I am going to try some time again going *clear through* Yellowstone Park on my *wheel*.

From what you know of me, and from what I have written here in these Home Papers, you may be surprised to hear me admit that I ever forget that God *is* our refuge and strength, and a very present help in trouble. I *am* ashamed of myself when I think of it. But I presume I am human. How often I think of that old favorite hymn of my father's—

Prone to wander; Lord, I feel it—
Prone to leave the God I love.

During the evening I felt so well and strong that I overhauled my wheel, looked into the oiling, adjustments, and put every thing in perfect trim. Next morning, before our party was up, I was off again, seeing and enjoying many sights that I did not notice on my former trip when I was feeling poorly. I reached Mammoth Hot Springs in excellent time, and went over once more the wonderful terraces. In crossing the bridge at Golden Gate I received my first admonition from the government soldiers. It was very kind and gentlemanly. One of them said: "Look here, my friend. Either walk, or ride very slowly when you are going down these roads cut in the side of the mountain. You might frighten horses, and have people thrown over the cliff."

I thanked him, and really enjoyed obeying to the very letter his sensible suggestions. If you look at Golden Gate on page 700 of our issue for Sept. 15 you will realize the justice of his admonition to wheelmen. In brief, I went clear down the mountain, and when I reached Gardiner I had ample time for a very pleasant visit at the residence of J. G. McKay. Some of the ladies there informed me that I ought to visit the Montana Experiment Station at Bozeman before going back to Ohio. She said it was 25 miles over the beautiful mountain pass, or "divide," as it is called, and that *some of the boys* had made the whole trip on the wheel, but she thought it was pretty difficult, especially climbing up for the first ten miles. I shall describe this trip later on; but

I want to say right here that I rode up the mountain pass, without a bit of trouble. The newly found strength was *more* than equal to the demands. I caught up with and ran past a loaded freight-train; but it was, of course, going very slowly on the ten miles of up grade. When it dodged through a tunnel while I was obliged to go over the top of the hill, of course the train got past me. Sometimes I have thought I enjoyed that trip of 50 miles, from Livingston to Bozeman and back, fully as much as if not more than I had the trip through Yellowstone Park; but it was largely because I was full of health, strength, vigor, and enthusiasm.

I have written this with a prayer, and with faith that it will give energy and enthusiasm to many of our readers—faith to *read* and *believe* God's holy word, and especially to remember that he *is* our refuge and strength, and, indeed, a very present help in all sorts of trouble while we are striving to do his will.

Half way down the incline toward Bozeman I stopped for refreshment at a pretty little town called Chestnut. I wanted some beef-steak; but the lady who kept the restaurant told me they had no meat-market nowadays, and that they could get fresh meat only when the meat-man happened to come around. A little further on I saw a meat-market, but a board was nailed across the doorway. Next door to it, however, was a good-sized saloon running full blast, and there were several other saloons in the town. The meat-market failed, and was closed up, but the saloon was booming, evidently, on all sides. Now, nobody told me the history of that closed-up meat-market; but you and I can guess why the people of that little mountain town, amid its beautiful surroundings and scenery, should fail to supply the traveler or the inhabitants with nourishing food while beer and whisky flowed in abundance.

As a fitting wind up to my little story of today I want to mention that our old friend Mrs. Jennie Culp—at least that used to be her name—told me, when I saw her at the Ohio State Fair selling honey, that she, like myself, had had troubles with indigestion and poor health, but that she too had gone to the dear Savior with her burdens and trials, and he had healed her of all her infirmities. I know that many of my good friends will say, "Why, Bro. Root, you are getting right over into the faith cure." Well, dear friends, the kind of faith cure that comes from recognizing the great Father above as your "refuge and strength" is all right; and when you get to the point of faith where you accept and believe that he is a very present help in all troubles, then your feet are on the solid rock.

There are others among our readers who will say, "Why, Bro. Root, there is not any need of thinking your little prayer (which, of course, was all right) had any thing to do with your sudden accession of strength, appetite, etc. First, you had not become acclimated to the great altitude. Then you drank Apollinaris water, and topped it off with geyser water. By the time you reached your wheel you had been eating speckled mountain

trout, as you have told us, and were getting over the effects of the mineral waters, and were becoming used to the high regions," etc. I suppose we could hunt up any number of good reasons to explain answers to prayer. Well, dear friends, I would by no means think of limiting God in his ways and means for bringing about an answer to our prayers. I prayed, and faith and strength came. An unthankful, lazy, and indolent spirit had possession of me. It was of more moment that this spirit should be banished than that I should have physical strength. You remember the blind man, when the Pharisees tried to make him think there was not any miracle in his case. They said that Jesus was a sinner. The blind man said, "Whether he be a sinner or no, I know not." But there was one thing he *did* know pretty thoroughly. He said, "One thing I know, that, whereas I was *blind*, now I *see*." I was sick, but now I am well and strong. When I ask God to heal me of physical ills, I expect to look about me and see what I can do to help answer my own prayer, or to fall in line, if you choose, with God's plans and designs; and while I pray I shall avail myself of all the aid that any honest and capable physician can give.

TEMPERANCE MATTERS.

The following clipping has come to us, but we do not know in what journal it appeared :

PROHIBITORY REGULATIONS.

Some weeks ago we commented in these columns upon the edict of a prominent railroad company forbidding employees to frequent saloons, and making intoxication cause for summary dismissal. It seems that railroad companies are not alone in this indirect denunciation of the nefarious liquor-traffic. Other concerns recognize the fact that indulgence in drink, and the frequenting of saloons, destroy that in their employees which makes their services desirable and valuable. A man who drinks is not worth as much as the man who does not. Business men recognize that important point, and they do not propose to see themselves robbed, and consent to the destruction of their own commercial interests. The following circular, sent out by a prominent express company, shows the drift of things somewhat:

PERSONAL CONDUCT OF EMPLOYEES.

1. The following circular which has been issued by the officials of the Western department meets with our full approval, and it is to be understood as applying generally in the company's business hereafter:

TO SUPERINTENDENTS, ROUTE AGENTS, AND EMPLOYEES WESTERN DEPARTMENT:

1. We have been making inquiries recently into causes leading up to defalcations, shortages, or dishonesty among our employees, which, we regret to say, have been very large in number during the past year. From the result of these inquiries we are led to make the broad statement that many of them, if not the majority, arose through negligence of superintendents, route agents, or general agents in failing to caution or reprimand the more useful in our service against practices of drinking, or frequenting saloons or other resorts where pernicious habits are formed. It seems impossible that officials of the company should be so slack in looking into the habits of their employees; but the statement made above, placing the moral responsibility at their door, is borne out by the facts. Many of those who have embezzled or committed thefts would never have done so had a word of caution or reprimand been given at the proper time.

2. Hereafter we shall hold the superintendents, route agents, or general agents personally responsible for any loss occurring through failure to properly exercise their authority in the matter of controlling the habits of drinking or gambling of the men they employ.

3. Any employee seen taking a drink of liquor while on duty or during business hours should be cautioned once, and, on repeating the offense, be immediately discharged. If an employee is known to drink to excess while off duty, and repeatedly, he should be dismissed from the service. It is expected that you will know positively whether any man under your supervision gambles; and a man once found so doing must not be retained in the service a single day.

5. These two things, drinking and gambling, are the beginning of nine-tenths of the defalcations or stealing of our employees, and, knowing this, you are morally responsible for

the wrong doing of a man you have failed to caution, and you are responsible to the company for any loss occurring because of failure to discharge him when you find your caution is not needed.

There are two points of special significance in the above. First, a gambler is *always* a dangerous man. In fact, this express company declares that a man who gambles shall not be retained a *single day*. They regard gambling, in some respects at least, as worse than moderate drinking. Secondly, in view of the above, why do not our express companies refuse to *carry* liquors any longer? Very likely it would make a big hole in the amount of business they do. But if their men handle liquors constantly, and in great quantities, and furnish them to others, how can they expect them to be total abstainers?

SOCIAL-PURITY DEPARTMENT OF THE W. C. T. U.

Our readers may remember that, three or four years ago, we discussed here in these columns the possibility of suppressing the *Police Gazette* from our news-stands, barber-shops, etc., inasmuch as it had already been ruled out of the mails by the postal authorities. Dr. Miller, Dr. Mason, and several others, wrote to the authorities at Washington, but our efforts did not seem to avail very much—at least not to our knowledge. Finding a copy of this periodical recently in one of our barber-shops here in this place, I mentioned the matter to Mrs. Dora Webb when sending in my yearly contribution. I am sure our readers will be interested in her reply:

Dear Brother Root:—I thank you most sincerely for your financial encouragement just received.

I can not see how the law under consideration could be more explicit in drawing the lines against the *Police Gazette* and *Police News*. Personally I have had a little experience. In Steubenville two news-dealers were selling the *Police Gazette*. We, in a sisterly way, remonstrated with the woman dealer, informing her concerning the law; but she retorted that she had not been *officially* warned. So we proceeded to "officially" warn her. We got a man (we had not the courage to do it ourselves, at that time, early in my work) to buy copies of the *Police Gazette* at each place. Armed with this evidence we went to the prosecuting attorney (who did not enjoy enforcing moral laws) and asked him to compel the dealers to desist, or enforce the State law, telling him we did not care to prosecute if they would cease their doings. The attorney at once did his duty, and created quite a feeling of unrest, to say the least, with the dealers; for within 24 hours they informed him they had burned every copy in their possession, and promised to cease, and they did cease.

In another place where I lived, a young newsboy was bringing in the papers, and they were being kept at barber-shops. One day as I was passing the shop I saw a little boy about six years old (it was summer) sitting in the window, on the sill, looking at pictures. I stepped *purposely* to the child and talked with him, and at the same time took notice that the paper was the *Police Gazette*. The little child was the son of the prosecuting attorney, who sat in the chair, being barbered. A brief time afterward I went to the attorney's office and asked him if he knew how his little boy was entertained while he was being shaved. He had not even noticed. I informed him, called his attention to the law, and asked him to see that it was complied with, telling him I was willing to appear as witness in the case, if need be. This put a stop to the business there. This was in St. Clairsville. The newsboy stopped bringing them when informed what the consequences would be.

In Steubenville, after the dealers ceased, we learned that two papers came to two men for their own use. They were expressed to them, and we could not reach them. *The Police Gazette and News make criminals*

wherever they go. They are outlawed. I am glad you are taking hold of the work of clearing them out of Medina. *God bless you.* DORA LESLIE WEBB.
Cadiz, Ohio, Oct. 21.

Accompanying the above was a copy of excerpts of the laws of Ohio in regard to the promotion of social purity; and I presume a copy of these laws will be furnished to any one who applies to Mrs. Webb, either in this State or out of it. Just now we make an extract from section 7027, concerning obscene literature and pictures:

SEC. 7027. Every person who, within the State of Ohio, sells or lends or gives away, * * * or who *sells, gives away,* or shows to any minor child any book, pamphlet, magazine newspaper, story-paper, or other paper devoted to the publication, or principally made up of criminal news, police reports, or accounts of criminal deeds, or pictures and stories of immoral deeds, lust, or crime, or exhibits upon any street or highway, or in any place *within the view,* or which may be within view of any minor child, any of the above-described books, papers, or pictures, shall, on conviction, be imprisoned not more than five years, or fined not less than fifty dollars nor more than two thousand dollars, with cost of prosecution for each offense, or both imprisoned and fined, at the discretion of the court.

Now, then, readers of GLEANINGS, shall we not look about us and see who it is that is transgressing this just and righteous law? Whenever we go into a barber-shop or to a news-stand, look out for the *Police Gazette*; and if there is much manliness about us we can surely do as well as those good women did in Steubenville, Ohio. If I am correct the above law was passed in 1896—not very long after the readers of GLEANINGS sent in their petitions to Washington. Is it not probable that our united petitions had more effect than we thought or knew of?



At Mammoth Hot Springs I saw some high-pressure gardening on a small scale that equaled any thing I ever saw anywhere. It was near the large hotel. The ground was made exceedingly rich with old well-rotted manure—perhaps sheep manure. Every thing in that little garden was mammoth in proportions, and wonderful in luxuriance. Potatoes stood up with the tops between two and three feet high, and the foliage was so gigantic in proportion that at first I thought it could not be common potatoes, but some special strain. In that locality there seem to be no bugs, flea-beetles, nor any of the leaf-eating enemies of the potato. Every leaf was perfect, and a model of health. Cabbages, beets, cauliflower, and every thing else seemed to be doing equally well. Very likely the garden was irrigated with warm water from the hot springs close by.

GARDENING IN MEDINA DURING OCTOBER.

At present writing, Oct. 26, we are yet without frost—at least, the tomato-vines are bright and green, and tomatoes are ripening slowly every day in full view of the window right before me. The exceeding wetness has pre-

vented digging our potatoes. In fact, a good many of them are still growing more or less. There have been several little frosts that nipped the leaves of the Hubbard squashes and sweet potatoes. The tomatoes, at least this year, seem to stand more than the above.

I have finally found an everbearing strawberry—at least, I have one plant that bears great nice luscious berries all along through the fall, just as I saw the same variety do during the winter in Arizona. It does not bear a great many, but there are some blossoms and berries on the plant almost all the time. I have not any plants to spare, for the simple reason that it, at least during this season, keeps bearing fruit instead of putting out runners. I have it on our very best ground, and we are going to give it excellent care, and will try to get runners from it next season. Of course, the White Alpines bear berries every day during the summer—at least, they bear a few. They are small but very soft. The Louis Gautier has gone through two seasons without producing a fall crop as the introducer claimed it would. We have given it different soil, and will try it one more season.

The unusual wetness for the past three months has given me a revival in underdraining and surface draining as well. My potatoes this season have done so much better right near a dead furrow that I think I shall, next year, throw our underdrained land up into beds so as to have a dead furrow, say every 30 feet; then these dead furrows empty into similar dead furrows at each end of the lot, or wherever there is much of a low place in the ground. I believe I shall get better crops, both in quality and quantity, for having these surface drains. You may remember this is the way James Smith, of Green Bay, Wis., managed to get his wonderful crops in small areas.

CONVENTION NOTICES.

The Colorado State Bee-keepers' Association will hold its annual meeting some time in November—the exact date given later. Heretofore we have met the third Monday in January; but it was thought best to meet earlier, and so we changed our constitution.

Loveland, Col., Oct. 18.

R. C. AIKIN.

The annual meeting of the Ontario Bee-keepers' Association will be held in the city of Guelph, on the 6th, 7th, and 8th of December, 1898. There is every prospect of there being a good meeting and a large attendance, owing to there being other attractions in Guelph on these dates; namely, the Guelph fat-stock show, which has a continental reputation; the Guelph poultry and pet-stock show; the Experimental Union. Many bee-keepers have an interest in all these associations. All bee-keepers are cordially invited.

Streetsville, Ont., Oct. 20.

W. COUSE, Sec.

The Illinois State Bee-keepers' Association will hold its eighth annual session in the State house, on the 16th and 17th of November, 1898. The Odd-Fellows hold their annual meeting the same week, and we have with them railroad rates of one and one-third fare for the round trip, open rate (that is, without a certificate). As this will be an important meeting we hope for a large attendance. Committees will be appointed, and steps taken to ask our next legislature for a foul-brood law.

JAS. A. STONE, Sec.

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1,000,000 Peach Trees

grown on the bank of Lake Erie, two miles from any peach orchards and guaranteed free from Scale, Borers, Yellows, etc. Large stock of Pear, Plum, Cherry, Quince and immense supply of Small Fruit plants. Headquarters for Ornamental Trees and Shrubs. A quarter of a million of low down budded roses.

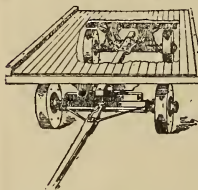
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originated with us, and we still sell direct to farmers three-fourths of all that are used. We build ten styles of farm wagons, extra wheels for old wagons, and milk-peddlers' wagons. Steel-wheel trucks, \$18.

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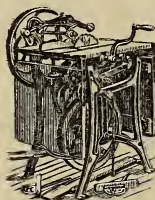
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QUEENS. Warranted purely mated, either golden or imported, by return mail. Untested, ¼ doz., \$1.75; select tested, ¼ doz., \$2.40; best breeders, \$2.00. One sample queen to new customer, 55 cts. each.

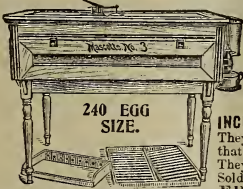
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MAKE A GOOD WAGON.
Unless a wagon has good wheels it is useless.
THE ELECTRIC WHEELS are good wheels and they make a wagon last indefinitely. They are made high or low, any width of tire, to fit any skelm. They can't get loose, rot or break down. They last all ways. Catalog free.
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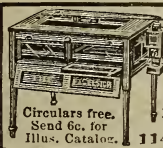
MAN OR WOMAN

or even a little child can make an entire success of the poultry business when they use the

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DES MOINES INCUBATOR CO., Box 503, Des Moines, Ia.

Pekin Ducks, \$1.00 Each.

We have the largest and finest flock of Pekins we have ever raised, and in order to reduce the number quickly we will for a short time sell in lots of five or more at \$1.00 each. They are the genuine long-bodied Pekins, and will surely please. Order quick.

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Largest and cheapest stock of Poultry Supplies in the United States; patentee and manufacturer of New American Incubator and Brooder. Pure-bred poultry at living prices. Send for our catalogue. It's a pretty book of 80 pages, finely illustrated, full of information. You need it. It's free. Address

Geo. J. Nissly, Saline, Mich.

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At any rate they have never suffered defeat in all the numerous tests, trials and competitions with the many machines of the same class.

RELIABLE INCUBATORS AND BROODERS

stand for the highest value known to the incubator art. It takes a book of 228 pages to tell all about them and our large pure-bred poultry plant, poultry supplies, etc. Sent on receipt of 10c in stamps. RELIABLE INCUBATOR and BROODER Co. Box B 49 Quincy, Ill.

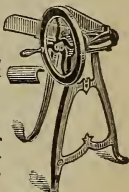


BIG MONEY IN EGGS

if you can only get enough of them at the lowest cost. **GREEN CUT BONE** solves the problem. It doubles the egg product. It makes hens lay in the dead of winter when eggs are worth money. It keeps the hen laying. It makes chicks grow fast and mature early, and makes early layers of the pullets.

MANN'S NEW BONE CUTTERS

prepare bone in the best way. Cut fast, run easy, last long. Mann's Clover Cutters, Granite Crystal Grit and Swinging Feed Trays are all necessary to highest success. Cash or installments. Illustrated catalogue sent Free.
F. W. MANN CO., Box 87, MILFORD, MASS.



Headquarters in the West for Bee-keepers' Supplies.

The Largest Business of the Kind in the West.

Thousands of hives, millions of sections, tons of foundation, and quantities of other stock sold the past season.

We sell the **ROOT GOODS AT THEIR FACTORY PRICES, AT DES MOINES, IOWA.**

1898 finds us in enlarged quarters with the largest stock and greatest variety of goods ever offered. All the latest improved up-to-date goods kept in stock.

ORDERS SHIPPED PROMPTLY. Estimates cheerfully given. Catalog free. Address

JOSEPH NYSEWANDER, Des Moines, Iowa.

BEE-SUPPLIES.

We have the best-equipped factory in the West. Capacity—one carload a day; and carry the largest stock and greatest variety of every thing needed in the apary, assuring best goods at the lowest prices, and prompt shipment.

Illustrated Catalog, 72 Pages, Free.

We also manufacture Tanks of either wood or galvanized steel, all sizes, any form, and for all purposes. Price list free.

Address E. KRETCHMER, Red Oak, Iowa.

In writing advertisers, please mention Gleanings.



SPECIAL NOTICES BY BUSINESS MANAGER

We have now ready our foul-brood pamphlet, leaflet No. 2, ready for distribution. We are a little late in getting it out, it is true; but, better late than never. As there will be nothing near the demand for these leaflets that there has been for the honey-leaflets, the price will be correspondingly higher, as follows: 10, 5 cts.; 50, 15 cts.; 25 cts. per 100; 500, \$1.10; 1000, \$2.00, all postpaid.

A LARGE ENGINE AT A BARGAIN.

Our 13x21 Buckeye engine is for sale at a very low price considering its value. It is a left-hand tangey bed, automatic cut off, running at present 200 revolutions, but at normal speed 165 per minute. If any of our readers know of any one in need of such an engine we should be pleased to hear from them, and we will give further particulars.

TWO PAPERS FOR THE PRICE OF ONE.

We have just made arrangements whereby we can club the *Poultry-keeper*, a monthly, edited by P. H. Jacobs, and published at Parkersburg, Pa., a fifty-cent monthly, with GLEANINGS, both for one year, for the price of GLEANINGS alone. The conditions of this offer are that all arrearages, if any, shall be paid up; then by sending \$1.00 we will give you GLEANINGS and the *Poultry-keeper* both for one year. If you wish to take advantage of this offer, do so at once, as it will be withdrawn soon.

GLASS FOR SHIPPING-CASES.

The price of glass continues to advance; and were it not for contracts we had placed some time ago, and a good stock bought before prices had gone so high, we could not maintain present prices for shipping-case glass and cases including glass. These prices will have to be advanced for next season, unless in the meantime there is a decided change in the glass situation. The tendency is for still higher prices rather than lower.

MAPLE SYRUP.

We have on hand a quantity of maple syrup in three grades which we offer at the following prices: A few gallons of extra fine No. 1 at \$1.00 per gallon. About 20 gallons of good No. 2 which we offer at 80 cts., or in 10-gallon lots at 75; and about 40 gallons of fair or No. 3, slightly tainted, which we will sell at 50 cts. per gallon, or in 10 gallon lots at 45 cents. Samples mailed to those interested. If you do not want it for syrup, the cheaper grades will do nicely for maple candy.

IMPROVEMENTS IN OUR PLANT.

Besides the 20x20 Ideal engine, which we hope to be placing in position before the next issue goes to press, we are putting in an 80 K. W. generator for the transmission of power by electricity. This generator will drive three new motors besides the five smaller ones we are now running from our lighting generator. Our entire plant will then be operated by one large engine driving most of the wood-working machinery by direct belt transmission, and the more distant machines by electric motors operated by the large dynamos run by the same engine.

DEPARTMENT STORE.

We are closing out that part of our business known as the Department Store. This was run for several years as the Counter Store. More recently the name was changed to Department Store, and a separate catalog prepared for it. In years past this store has been a great convenience to many of our customers; but because of new conditions it seemed advisable to discontinue it. Mail order business in the great variety of household requirements has been developed in recent years to such an extent by the large department stores in the cities that we could not keep pace with the march of progress without increasing our facilities and enlarging our stock and assortment. The Department Store was only a side issue with us, our main business being the manufacture of bee-keepers' supplies of all kinds. With this business increasing so rapidly, and requiring our whole time and attention, we were compelled to neglect the Department

Store, and, needing the room, we decided to close it out.

Another reason for this decision was the fact that our branch houses, run in our name, for the sale of bee-keepers' supplies exclusively, and which never carried any of the store stock, were being bothered more or less with orders for goods listed in the Department Store catalog. Having decided to close out our Department Store we are working off the stock in every way, and many things at considerable sacrifice. Of course, we are already sold out of a great many items as listed, but we still have a stock of others. There are a few articles which have been listed in the Department Store catalog that we expect to continue to handle, and which will be listed on extra pages in the Bee Supply catalog.

The Root Bros. Co., at Plymouth, Ohio, manufacturers of the "Repairing Outfits," are going into the department-store supplies more extensively, and now list in their catalog nearly every thing we had listed as well as many other things. Those who have been looking to us for these goods will do well to send to them for their late catalog. You will get a catalog under the name of The J. A. Root Co.; and, if you send them your order, you will get fair and square dealing; but remember there is no connection whatever between this company and The A. I. Root Co., even though the names are very much alike.

On another page we offer more special bargains from our present stock while it lasts, and we expect to offer other items later on.

POTATOES FOR SEED OR FOR TABLE USE; PRICES OF NEW CROP.

Contrary to my expectations, prices are ruling lower on most varieties than last year. I presume the beautiful fall weather has had much to do in making the crop better and larger than was expected. In fact, we are able to offer, for an immediate order, very nice potatoes, either for seed or for table use, at the following low prices:

LIST OF POTATOES AT ONLY \$2.00 PER BARREL FOR FIRSTS OR \$1.25 PER BARREL FOR SECONDS.

Monroe Seedling, Rural New-Yorker, State of Maine. We may be able to offer other varieties at these prices later, but these three are all we now have at that figure.

POTATOES FOR \$2.50 PER BARREL FOR FIRSTS, AND \$1.50 PER BARREL FOR SECONDS.

Early Thoroughbred, Freeman, New Queen, Carman No. 3.

POTATOES AT \$3.00 PER BARREL FOR FIRSTS, AND \$1.75 PER BARREL FOR SECONDS.

Triumph, either Red or White; Early Ohio, New Craig.

POTATOES AT \$3.50 PER BARREL FOR FIRSTS, OR \$2.00 PER BARREL FOR SECONDS.

Early Bovee and Manum's Enormous. Potatoes shipped during the month of November will be at my risk of freezing, providing the orders are made soon, so that we can get them off before freezing weather sets in.

OUR FIRST KILLING FROST.

On the night of Oct. 27th we had the first frost that laid low tomato-vines, and every thing of a like nature. We feel thankful for the long growing fall with its abundance of rain.



SEE THAT WINK? BEE SUPPLIES.

Root's Goods at Root's Prices.

Powder's Honey-Jars and every thing used by bee-keepers. Low freight rates; prompt service. Catalog free.

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800 ferrets now ready to ship. Also Italian bees and queens. Belgian hares \$2.00 per pair. Price list free.

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